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FIFTEENTH BIENNIAL REPORT

Oregon State Highway Commission

1940-1942

FIFTEENTH BIENNIAL REPORT

OF THE

Oregon State Highway Commission

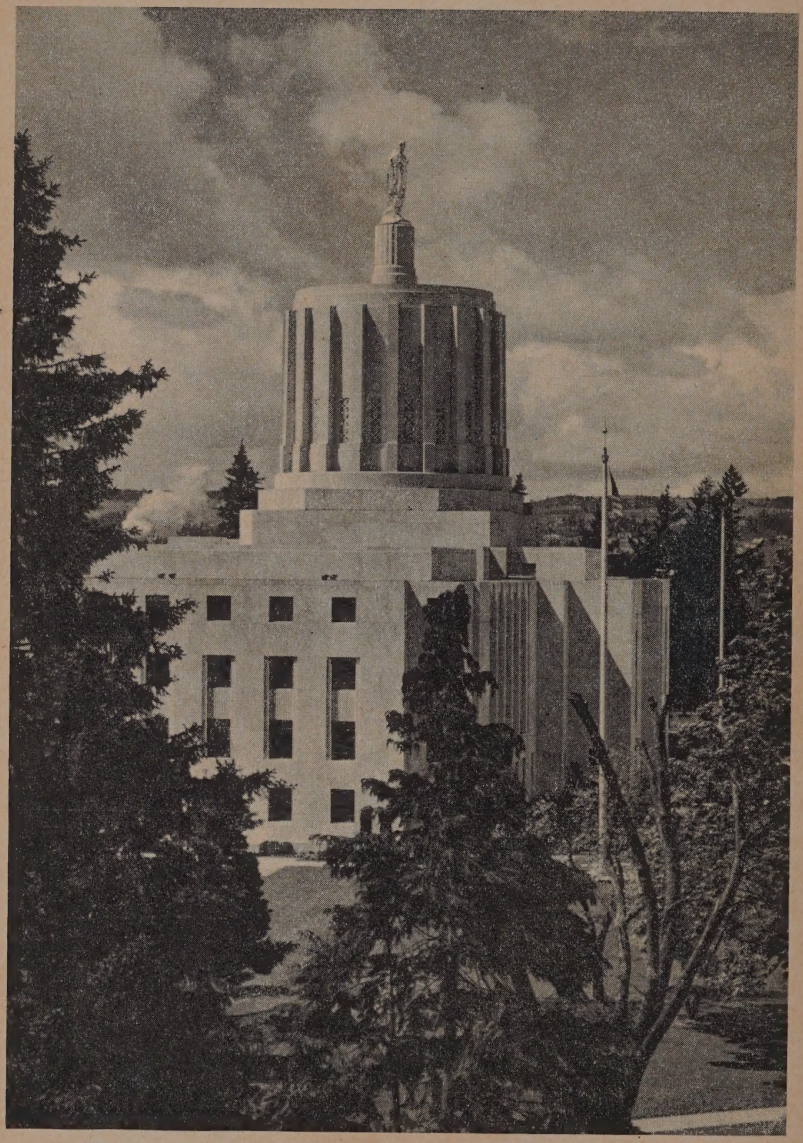
For the Period July 1, 1940, to June 30, 1942

OREGON STATE HIGHWAY COMMISSION

HENRY F. CABELL, Chairman
HURON W. CLOUGH, Commissioner
HERMAN OLIVER, Commissioner

R. H. BALDOCK, State Highway Engineer
C. B. McCULLOUGH, Asst. State Highway Engineer
H. B. GLAISYER, Secretary

STATE PRINTING DEPT.



STATE CAPITOL BUILDING AT SALEM

OREGON STATE HIGHWAY COMMISSION

Former Members and Terms

E. J. Adams, Eugene, February 28, 1917, to March 31, 1918.

W. L. Thompson, Pendleton, February 28, 1917, to October 15, 1919.

S. Benson, Portland, February 28, 1917, to November 15, 1920.

R. A. Booth, Eugene, April 1, 1918, to May 28, 1923.

J. N. Burgess, Pendleton, October 16, 1919, to November 21, 1919.

E. E. Kiddle, Island City, November 26, 1919, to December 28, 1920.

J. B. Yeon, Portland, November 22, 1920, to March 31, 1923.

W. B. Barratt, Heppner, January 8, 1921, to March 27, 1923.

Wm. Duby, Baker, March 27, 1923, to July 31, 1927.

H. B. Van Duzer, Portland, April 1, 1923, to October 7, 1931.

W. H. Malone, Corvallis, May 28, 1923, to March 31, 1927.

C. E. Gates, Medford, April 1, 1927, to March 11, 1931.

Robert W. Sawyer, Bend, August 1, 1927, to May 28, 1930.

M. A. Lynch, Redmond, May 29, 1930, to August 1, 1931.

Chas. K. Spaulding, Salem, March 11, 1931, to February 16, 1932.

Wm. Hanley, Burns, August 1, 1931, to February 16, 1932.

J. C. Ainsworth, Portland, October 8, 1931, to February 16, 1932.

Leslie M. Scott, Portland, February 17, 1932, to March 31, 1935.

Carl G. Washburne, Eugene, February 17, 1932, to October 9, 1935.

E. B. Aldrich, Pendleton, February 17, 1932, to March 31, 1940.

F. L. Tou Velle, Jacksonville, October 9, 1935, to March 31, 1939.

Present Members

Henry F. Cabell, Portland, appointed April 1, 1935.

Huron W. Clough, Canyonville, appointed April 1, 1939.

Herman Oliver, John Day, appointed April 1, 1940.

TABLE OF CONTENTS

Section One. Report of Highway Commissioners

	Page
EFFECT OF WAR ON HIGHWAY FUNCTIONS	8
BUDGETARY AND FINANCIAL MATTERS	14–21
Source of Funds for State Highway Improvement	14
Amounts Received and Disbursed, 1941-1942	20
State Debt Structure for Highways	20
Financial Needs of the State Highway Department for the Next Biennium	21
GENERAL COMMENTS	24–26
State Maintenance of Heavy Traffic City Streets	24
Bridge Survey of Columbia River	25
Labor Shortage	26
LEGISLATIVE RECOMMENDATIONS	27

Section Two. Report of Highway Engineer

HIGHWAY DEPARTMENT ORGANIZATION	32–36
Administrative and Supervisory Organization	32
Field Engineering Organization	34
Equipment Department	36
PROGRESS IN HIGHWAY IMPROVEMENT	37-55
General Summary	37
Primary State Highways	39
Secondary State Highways	55
County Roads	55
CLASSES OF HIGHWAYS	56
FINANCIAL REPORT OF OFFICE ENGINEER	67–88
Sources of State Highway Income	67
Incomes and Disbursements, 1941 and 1942	68
Anticipated Incomes for 1943 and 1944	71
Expenditure Budgets for 1943 and 1944	72
Federal Participation in Financing of State Highway Work	75
Forest Highway Work	85
Work Projects Administration (WPA) Projects	88
REPORT OF CONSTRUCTION DEPARTMENT	91–97
Access Roads	91
Flight Strips	95
Major Federal Aid Projects	96
Loss of Experienced Personnel	97
Construction Difficulties	97
REPORT OF BRIDGE DEPARTMENT	99
REPORT OF MAINTENANCE DEPARTMENT	105–117
Maintenance Organization	106
Paving and Oiling Crews	107
Signs, Signals and Traffic Lines	107
Bridge Maintenance	110
Operation of Ferries and Drawbridges	113
Maintenance of Buildings	113

Page

Weight Control of Trucks 113
State Maintenance on City Streets 114
State Park Roads and Parking Areas 114
Equipment Department 115
Engineer Battalion 116
Cost Statements 117

REPORT OF TRAFFIC ENGINEERING DIVISION 125

REPORT OF LEGAL AND RIGHT OF WAY DEPARTMENTS 129

REPORT OF MATERIALS DEPARTMENT 133

REPORT OF STATE PARKS DEPARTMENT 137

REPORT OF TRAVEL AND INFORMATION DEPARTMENT 142

MISCELLANEOUS ACTIVITIES 146

Section Three. Financial and Statistical Information

Table No. 1. Detailed Summary of Income and Expenditures 153
Table No. 2. Summary of Expenditures 155
Table No. 3. Mileages of Highway Construction Work Performed 156
Table No. 4. Mileages of State Highways Maintained 157
Table No. 5. State Funds Received and Expended, 1917 to 1942 158
Table No. 6. Yearly Expenditures by Funds, 1917 to 1942 159
Table No. 7. Summary of Expenditures by Major Items, 1917 to 1942 160
Table No. 8. Summary of Expenditures, 1917 to 1942 161
Table No. 9. Incomes from Different Sources, 1917 to 1942 162
Table No. 10. Expenditures for Different Purposes, 1917 to 1942 164
Table No. 11. Construction Expenditures, Primary Highways 168
Table No. 12. Maintenance Expenditures, Primary Highways 170
Table No. 13. Primary Highway Construction Expenditures by Counties 171
Table No. 14. Primary Highway Maintenance Expenditures by Counties 172
Table No. 15. Secondary Highway Construction Expenditures by Counties 173
Table No. 16. Secondary Highway Maintenance Expenditures by Counties 174
Table No. 17. County Road Construction Expenditures by Counties 175
Table No. 18. County Road Maintenance Expenditures by Counties 176
Table No. 19. Forest Highway Expenditures by Counties 177
Table No. 20. Forest Highway Expenditures by Highways 178
Table No. 21. Forest Highway Statistics by Years 179
Table No. 22. County Disbursements for Road Purposes 181
Table No. 23. County Indebtedness for Road Purposes 182
Table No. 24. Apportionment to Counties of Motor Vehicle Fees 183
Table No. 25. Mileages of Primary State Highways 184
Table No. 26. Mileages of Primary Highways by Counties 185
Table No. 27. Mileages of Secondary Highways by Counties 186
Table No. 28. Mileages of Secondary State Highways 187
Table No. 29. Mileages of Roads Other Than State Highways 189
Map of State Highway System—Opposite page 184
List of Persons Rendering Professional or Special Services 190
List of Employes of the State Highway Commission 192

LETTER OF TRANSMITTAL

Salem, Oregon,

January 1, 1943.

HONORABLE CHARLES A. SPRAGUE,
Governor of the State of Oregon.

Dear Sir:

In compliance with the provisions of section 100-115, O. C. L. A., we have the honor of presenting to you the report of the Oregon State Highway Commission for the period from July 1, 1940, to June 30, 1942.

Respectfully yours,

OREGON STATE HIGHWAY COMMISSION,

HENRY F. CABELL, Chairman,

HURON W. CLOUGH, Commissioner,

HERMAN OLIVER, Commissioner.

BIENNIAL REPORT

OF THE

Oregon State Highway Commission

Fiscal Years 1941 and 1942

INTRODUCTION

This report has for its purpose the presentation of such financial, statistical, and other data as are needed for an intelligent understanding of Oregon's highway problems. The period covered extends from July 1, 1940, to June 30, 1942, the fiscal biennium which has elapsed since the submission of the last previous report. In addition to the statistical data covering this particular biennium, there are included certain factual data dating back to 1917, which year witnessed the inauguration of Oregon's roadbuilding program. Forecasts of probable revenues and requirements for the next biennial period and a discussion of certain basic financial problems are also included. In certain cases the statistical tables have been reduced to a calendar-year basis in the interest of clarity.

The first section of this report contains the Commission's discussion of budgetary and other financial matters and its recommendations to the state legislature. The second section contains the report of the State Highway Engineer to the State Highway Commission.

Section Three contains statistical compilations.

SECTION ONE

Effect of War On Highway Functions

As a preliminary to the discussion of budgetary and financial matters which is to follow, a statement concerning the effect that war conditions are having, and will continue to have, on the construction, maintenance and operation of highways, is in order. This is the first time this country has engaged in what is termed a total war. The implementation of modern war demands the manufacture of machines of all kinds in great numbers. This requires the utilization of practically all of the so-called essential commodities such as steel, rubber, chrome, nickel, and lumber for the war effort, leaving practically none of these commodities for ordinary civilian purposes. It is obvious that a normal peacetime economy cannot function under such conditions. Since this is a war of survival, the matter cannot be temporized with. Preference must be given to the needs of war.

There is a shortage of manpower. A great number of men are required directly in the armed services, while a still greater number are required to build the ships, the armament and supplies needed to prosecute the war, not only on battle fronts where our own forces are engaged but on the battle fronts of all of the nations engaged in fighting the Axis powers. As a result of these conditions, the Highway Commission, shortly after the Pearl Harbor incident, which marked the beginning of United States participation in the war, took action to cancel those of the state and federal construction jobs which had not yet gotten underway and which were not considered essential to the war effort. With the passage of time the stringency in the shortage of manpower and critical materials has become greater, and positive action has lately been taken by the War Production Board against the diversion of essential labor and materials to projects not considered by them to be essential to the war effort. As a result, all construction jobs now under way in this State are those that have been certified by the Army, the Navy and the War Production Board to be essential. During the past several months, the Commission has under-

taken no construction projects except projects on access roads leading to military reservations and war industries and projects involved in the building of flight strips or small satellite air fields located near highways. It is reasonable to assume that by the end of next year the major portion of the plant facilities required by the war effort will have been constructed and that, therefore, the need for the building of access roads will have ceased. This, presumably, will spell the end of the highway construction program for the duration.

If it were not for other factors which are the direct result of wartime activities, the State Highway Commission would have a large surplus of funds on hand at the end of the next two years by reason of the inability of the Commission to carry on the normal construction program ranging from $5,000,000 to $7,000,000 per year, and requiring the use of approximately $3,000,000 of State funds. The factors here referred to are the rubber shortage and the rationing of gasoline, both of which are operating, or will be operating, to very greatly reduce highway income.

NORTH CANAL BRIDGE ON THE DALLES-CALIFORNIA HIGHWAY AT BEND

The shortage of rubber has drastically curtailed the operation of non-essential motor vehicles and, by the time this report is printed, mileage rationing will be in effect. Even before the rationing plan was made effective in Oregon, travel on the highway system, as expressed in numbers of vehicles, had decreased approximately 25 per cent. From the experience in the East, where mileage rationing has been in effect for some time, the reduction in traffic in this State may reach 40 or even 50 per cent. This does not mean that the revenues will be cut proportionately because every attempt will be made to provide tires and gasoline for heavy motor equipment engaged in the movement of essential commodities. Likewise, additional gasoline and tires will be afforded war workers and other people when there is no other means of travel between the homes and the places of work. Nevertheless, the loss of revenue will be very great.

As no one can foresee all conditions and correctly estimate revenues under such circumstances, little reliance can be placed on any estimates of future revenues made at this time. However, it has been necessary for the Highway Commission to make such estimates, and, in making them, the Commission endeavored to exercise sound judgment and to correctly evaluate such of the factors entering into the problem as are subject to evaluation. These estimates are used in the accompanying tables showing estimates of income.

It appears that there will be enough funds to maintain and operate the system for the next two years. Should the war continue beyond that period, it is problematical whether the income would be sufficient for even the barest essentials of highway upkeep and operation. While it is quite possible that by that time tires of synthetic rubber will be available for civilian use, there may still be a shortage of motor vehicles due to large numbers of vehicles having been worn out. Loss of vehicles from this cause may have a marked effect in the reduction of revenues.

Attention is called to the fact that during normal times the State Highway Department of Oregon is called upon to advance funds for the construction of federal aid highways The State Highway Commission is later reimbursed upon the presenta-

tion of proper vouchers showing that the work has been performed in accordance with specifications. The handling of this work, therefore, requires a reserve of from $2,000,000 to $3,000,000 in what might be termed a revolving fund for the advance financing of federal aid work. With the closing down of federal aid construction work, this revolving fund will be released and used to meet current expense of the Department, and in the financial statements given herein such release is contemplated. However, when normal times return, it will be necessary to re-accumulate this revolving fund of from $2,000,000 to $3,000,000 before the contracting of federal aid work can be resumed. Thus it is seen that the meeting of current expenses during the next two years may require a depletion of the Department's reserve funds as well as the use of all current income.

It is recognized by everyone that the maintenance of highways must continue, because highways are vitally necessary to both the wartime and the peacetime economy of this State. The State is inadequately served by rail, and many sections are without transportation facilities other than highways. One of the difficulties encountered in maintaining highways is the shortage of labor. To relieve this situation, the Highway Commission plans to employ as many women as possible and to train them in the performance of the lighter forms of maintenance work. The use of substitute materials of various kinds is another expedient being used to make possible the carrying on of the work under present adverse conditions.

Difficulties are being encountered in the contracting of the crushing of rock and gravel for use in maintaining highway surfaces. This is due in large part to the difficulties contractors are experiencing in securing repair parts for equipment. Efforts are being made and will continue to be made by the Highway Commission to persuade the War Production Board of the need for higher priorities to enable the carrying on of this type of necessary work. The exhaustion of the present stocks of crushed rock and gravel will prevent the Highway Commission from adequately maintaining the highways; in fact, it may result in the roads getting in such condition that they cannot be negotiated by motor vehicles. This would have

an adverse effect upon the entire economy of the State. It would seriously curtail the harvest of timber at a time when lumber is so greatly in demand for various uses in the war effort. It would likewise materially handicap the movement of foodstuffs from farm to market. If there is any time when roads should be kept usable and smooth, it is now when transportation is so vitally important and when the need for the conservation of rubber is so critical.

The Highway Commission is experiencing difficulty in securing lumber for the maintenance of bridges and it is quite possible that the next summer season will see the Commission handicapped in the acquisition of the asphalt required to properly maintain the many miles of oiled roads in the State. Every effort will be made by the Commission to obtain these necessary materials to the end that Oregon's highway system can serve the public satisfactorily in these trying times and in order that there may be no serious deterioration in the State's investment in highways.

Looking ahead toward the postwar period, the Commission has been proceeding with surveys, designs, specifications and estimates for a substantial program of highway construction to be undertaken during that period. The transfer from a wartime economy to a peacetime economy will be a difficult undertaking at best, and it is generally agreed that a substantial public works program will have to be undertaken in this country at that time to cushion the shock of readjustment. No one can foresee at this time what funds will be available from the Federal Government and under what conditions such funds can be utilized in highway improvement. As a part of the planning survey sponsored by the Federal Government, the Highway Commission has taken advantage of federal funds which have been made available for surveys and plans for the reconstruction of certain roads included in the so-called interregional system of highways.

Included among such projects being thus planned are the relocation for the improvement of long sections of the Pacific Highway (US Route No. 99) and the upper Columbia River Highway (US Route No. 30) from Troutdale to The Dalles.

In addition to this, the Highway Commission has completed surveys and plans for many other roads which are not on the interregional system, but which are manifestly needed to provide better transportation facilities to encourage the economic development of this state.

It is apparent to everyone that the impossibility of properly maintaining the public roads system, and of carrying on needed extensions and betterments during the war period, will result inevitably in a state of disrepair which will cause strong demand for road repair, for road reconstruction and for betterment and extension of the system. When the war is won, this problem will be immediately at hand and there will be no time then to make orderly plans. Plans must be made now. Preparation of detailed plans for the contracting of a large program of public works, including highways, to give employment in the readjustment period requires considerable time and should have immediate attention. The Highway Commission is making plans acordingly.

IMPROVEMENT ON TILLER-TRAIL SECONDARY HIGHWAY ABOUT 10 MILES EAST OF CANYONVILLE IN DOUGLAS COUNTY

Budgetary and Financial Matters

Source of Funds for State Highway Improvement

The funds disbursed by the State Highway Commission for the construction, maintenance and operation of highways are derived from two general sources: (1) state funds, which consist principally of motor vehicle imposts; and (2) federal aid of various types and classes. In addition to the above, certain minor contributions in the form of county moneys and other miscellaneous co-operative funds are available for expenditure for highway purposes.

The state motor vehicle imposts consist of:

1. Motor vehicle license fees, which include both vehicle registration fees and drivers' license fees.
2. Motor fuel taxes.
3. Motor transportation fees.
4. Fines for traffic law violations.

In addition to the above, certain minor increments accrue to the state highway fund by virtue of cash discounts and co-operative payments from counties, railroads and others.

In the year 1930, state highway annual income, after increasing gradually for several years, reached the amount of $12,279,444. Owing to unfavorable economic conditions beginning at about that time, and to the fact that the legislature in that year reduced motor vehicle registration fees, this income dropped to $9,859,702 in 1931, to $8,918,993 in 1932, and to $6,337,057 in 1933. This latter sum was approximately $1,000,000 below the minimum fixed requirements, as of that time, for highway bond debt service, maintenance, administration, and emergency or unavoidable reconstruction. A portion of the necessary reconstruction fund was provided in that year by the Federal Government. The remainder of the deficit, however, had to be funded through a sale of five-year bonds in the amount of $1,500,000.

Since 1933, the net income for state highway purposes (exclusive of amounts contributed to counties and state police) has

steadily increased, reaching a maximum of $15,083,878 in the calendar year 1941. Exact figures for the calendar year 1942 are not yet available, but it is estimated that the net income for state highway purposes for that year will amount to $13,-477,000, the falling-off of $1,600,000 from the 1941 total being the beginning effect of the war conditions which, before the war is over, will bring about a much greater reduction in the annual income.

The detailed figures for the calendar years 1941 and 1942 are given in the accompanying Tables I and II.

TABLE I

State Road-user Income for Calendar Year 1941

	Gross Amount Paid by Motor Vehicle Owners	Collection Expense	Net Amount for State Highways, State Police and Counties
Motor vehicle license fees and drivers' license fees	$ 4,141,556	$ 512,482	$ 3,629,074
Gasoline tax ($14,607,965 less $1,691,745 refunds)	12,916,220	48,288	12,867,932
Motor transportation fees	1,569,636	271,850	*1,297,786
Fines	41,145	.....	41,145
Totals	$18,668,557	$ 832,620	$17,835,937
Less $2,410,961 contributions to counties and $341,098 to state police department			2,752,059
Net revenue for state highway purposes			$15,083,878

* Includes the transfer of $303,949 for the fourth quarter of 1940, but does not include the transfer of $398,405 for the fourth quarter of 1941.

TABLE II

Estimated State Road-user Income for Calendar Year 1942

	Gross Amount Paid by Motor Vehicle Owners	Collection Expense	Net Amount for State Highways, State Police and Counties
Motor vehicle license fees and drivers' license fees	$ 3,610,000	$ 410,000	$ 3,200,000
Gasoline tax ($13,675,000 less $1,750,000 refunds)	11,925,000	45,000	11,880,000
Motor transportation fees	1,777,000	260,000	1,517,000
Fines and cash discounts	40,000	.....	40,000
Totals	$17,352,000	$ 715,000	$16,637,000
Less $2,815,000 contributions to counties, and $345,000 to state police department			3,160,000
Estimated net revenue for state highway purposes			$13,477,000

State moneys expendable for highway purposes as above indicated are augmented to a considerable degree by funds made available to the State by the Federal Government. Funds from this source fall into two general classifications: (1) periodic federal aid for highways which consists of funds definitely and regularly appropriated for this purpose by the Congress; and (2) emergency federal appropriations for highway work to meet the needs of war, to relieve conditions of unemployment, et cetera.

Falling in the first category are regular federal aid funds, federal aid for secondary highways, federal funds for grade crossing elimination and federal lands highway funds. These funds are appropriated from year to year in more or less uniform amounts, and the regulations governing their use are about the same each year. They may, for those reasons, be planned for in advance and worked into the State program to very good advantage.

Falling in the second category are co-operative funds such as the Public Works Administration (P. W. A.) funds, the Works Projects Administration (W. P. A.) funds and, more recently,

DIM OUT WARNING SIGNS ON SECTIONS OF OREGON COAST HIGHWAY IN CLOSE PROXIMITY TO OCEAN BEACHES

the Defense Highway funds made available for access roads and flight strips. Funds of this class may or may not be available at any given time as their availability is not on any established continuing basis. Usually these funds are not available to the State in any definite amounts. The extent to which the State may avail itself of them when they are available is limited by the State's ability to submit acceptable projects and, in certain cases, to contribute a share from State funds.

Federal funds collected by the State Highway Commission during the calendar year 1941, and estimates of the amounts expected to be collected during the calendar years of 1942, 1943 and 1944, are as follows:

1941	$2,810,895
1942 (approximate)	2,980,000
1943 (estimated)	5,425,000
1944 (estimated)	800,000

Attention is called to the fact that the amounts above stated are the amounts of federal funds collected or to be collected during the respective calendar years to reimburse the State for expenditures made on co-operative projects, including expenditures made during the previous year, as well as expenditures made during the current year. The amounts should not be confused with the amounts of federal aid earned during those years or with the amounts of federal aid funds apportioned to the State for those years, which may differ very greatly from the amounts collected. For instance, while the amount of federal aid expected to be collected in 1942 is $2,980,000, the amount of federal aid funds apportioned to the State for the federal fiscal year 1942 is $2,261,843, and the amount of federal aid funds earned in connection with work performed during 1942 is approximately $3,765,000. These variations are occasioned by the fact that the performance of work and the collection of reimbursement for the apportionment of any year necessarily extend over a period two or more years in length.

The extraordinary increase in expected federal fund collections during 1943, as compared with 1942, is due to the large

amount of access road and flight strip work undertaken in 1942 as a part of the war effort. For the most part these funds were in their entirety federal funds, the State merely advancing the funds and acting as the agency of the Federal Government in overseeing the work. Much of this work was performed in 1942, but the federal reimbursements will not be received until 1943.

Federal funds received by the State Highway Commission can be used only for improvements of a permanent nature, and usually they can be used only on highways included in the federal aid highway system of the State. They are not available to meet maintenance expense, operating costs, or interest or principal on bond indebtedness, and only in connection with certain classes of work are they available for the expense of making surveys and securing rights of way. With certain exceptions, they are not available for work on county roads or secondary highways. In general, also, federal aid is contingent upon co-operative expenditure by the State in considerable amount. The minimum percentages of co-operation (State funds) required for the various types of regular governmental aid are as follows:

Regular federal aid projects (not on strategic network)	38 per cent
Regular federal aid projects (on strategic network)	19 per cent
Federal aid secondary highway projects	38 per cent
Federal aid grade crossing projects	0 per cent
Federal lands highway projects	variable
Federal access road projects	0 per cent
Federal flight strip projects	0 per cent

In addition to providing co-operative funds in the percentages above indicated, the State is, in most cases, required to provide the right of way and to bear the preliminary engineering expense.

While some Works Projects Administration funds were expended on highways in Oregon during the 1941-42 biennium, the expenditure of that class of federal funds and of Public

Works Administration funds has now practically ceased. Expenditures of these funds were intended primarily to be for the purpose of relieving the condition of unemployment which obtained during the period from 1932 to 1940. With the advent of war and the labor shortage which has developed with it, the need for expenditures of funds of these kinds has disappeared.

While the advent of war has operated to eliminate the need of WPA funds and PWA funds, it has created a need for federal funds with which to improve roads and streets needed to serve the purposes of the military forces and the war industries. This need was provided for by the Defense Highway Act of 1941, which Act set up a strategic highway network which included those roads in each state which are of particular importance from the standpoint of military defense, and provided funds for needed improvements on that network and on access roads to military and naval installations and war industries. One hundred and fifty million dollars was made available for access roads, allocation of the funds among the states to be made on the basis of need and not in accordance with any prescribed formula. Fifty million dollars was made available for the strategic highway network, half without any basis for allocation among the states and half to be allocated among the states on the same basis as regular federal aid. Ten million dollars was made available for the construction of flight strips without any specified basis of allocation.

Oregon has, as yet, had no special strategic highway projects allotted to it. Of access road projects, it has had twelve, requiring federal funds in the amount of $2,790,000. Of flight strip projects, it has had four requiring $1,000,000 of federal funds.

The Defense Act also provides funds for the financing of surveys and plans for postwar work and these funds are now being used in the planning of projects for postwar performance. Further, the Act enables the Federal Government to assist the states in the purchase of rights of way and, in the cases of access road and flight strip projects, to bear the entire cost of the right of way.

In recognition of the inability of some of the states to match federal aid funds on the basis heretofore required, this Act

reduced the matching requirement of the states, on projects on the strategic highway network, from 50 per cent to 25 per cent, with additional reduction for those states in which public lands are situated. With this reduction, Oregon's share of the cost of federal aid projects on the strategic highway network is lowered from 38 per cent to 19 per cent. In Oregon, the strategic highway network includes most of the more important primary state highways (about 58 per cent of the total primary highway mileage).

Amounts Received and Disbursed, 1941-1942

The amounts received into the State Highway Fund from all sources and the amounts disbursed therefrom during the calendar years 1941 and 1942 are as shown in accompanying Table III.

TABLE III

Receipts and Disbursements, 1941 and 1942

	1941 (Actual)	1942 (Estimated)
Receipts:		
Road-user income	$17,835,937	$16,637,000
Federal funds collected	2,810,895	2,980,000
County co-operation	62,041	9,000
Miscellaneous	17,009	24,000
Gross receipts	$20,725,882	$19,650,000
Deduct for contributions to counties and to state police department	2,752,059	3,160,000
Net income for state highway purposes	$17,973,823	$16,490,000
Balance on hand at beginning of year	1,673,897	1,893,000
Total amount available for disbursement	$19,647,720	$18,383,000
Disbursements:		
Capital outlays	$10,296,363	$ 7,489,000
Maintenance	4,053,525	4,605,000
Bond expense	2,739,085	2,620,000
Operation and miscellaneous	666,013	830,000
Total amount disbursed	$17,754,986	$15,544,000
Balance on hand, end of year	$ 1,892,734	$ 2,839,000

State Debt Structure for Highways

At the close of the biennial period ending June 30, 1942, the state highway bond debt amounted to $11,541,750, a reduction

of $4,300,000 in the amount of the bond debt having been effected during the biennium.

Payments of bond interest and principal continue to be a heavy drain on highway income amounting, as it does, to $2,470,-245 in 1943 and $2,224,110 in 1944. After 1944, this item of expense will decrease rapidly, being $1,680,913 in 1945, $1,219,998 in 1946 and $776,765 in 1947. The present bond obligation will not be completely retired until 1960.

Detailed information relating to state highway bond indebtedness appears in accompanying Table IV and Table V.

Financial Needs of the State Highway Department for the Next Biennium

The financial needs for the next biennium are based upon the bare minimum expenditures for administration, maintenance and operation of the highway system. The Fourteenth Biennial Report gave an analysis of the needs of the State Highway Commission in carrying on a continuing program for the next decade. The shock of the war has thrown the peacetime economy out of gear and no accurate forecast can be made until the present war is over and adjustment to a peacetime economy is made.

The financial needs of the state highway system are, therefore, confined to the bare necessities for the next two-year period, with the further thought of reserving sufficient monies for a construction revolving fund to carry on the postwar highway projects which, it is hoped, will be financed largely with federal funds. Estimates indicate that revenues will barely meet these needs.

TABLE IV

State Highway Bond Indebtedness Account

Calendar Year	Annual Principal	Annual Interest	Annual Total	Bonds Outstanding At End of Year
1917	$	$ 5,000.00	$ 5,000.00	$ 1,400,000.00
1918	.....	72,900.00	72,900.00	2,840,000.00
1919	.....	141,099.99	141,099.99	10,140,000.00
1920	.....	503,725.00	503,725.00	19,140,000.00
1921	.....	974,870.83	974,870.83	30,700,000.00
1922	125,000.00	1,521,266.67	1,646,266.67	36,075,000.00
1923	179,750.00	1,742,150.00	1,921,900.00	38,395,250.00
1924	334,500.00	1,824,240.00	2,158,740.00	38,060,750.00
1925	3,797,000.00	1,799,267.05	5,596,267.05	37,263,750.00
1926	1,197,000.00	1,722,761.65	2,919,761.65	36,066,750.00
1927	1,600,000.00	1,663,215.87	3,263,215.87	34,466,750.00
1928	1,750,000.00	1,586,060.99	3,336,060.99	32,716,750.00
1929	1,825,000.00	1,503,578.47	3,328,578.47	30,891,750.00
1930	1,925,000.00	1,418,314.70	3,343,314.70	30,466,750.00
1931	1,975,000.00	1,386,522.18	3,361,522.18	29,491,750.00
1932	2,975,000.00	1,369,435.06	4,344,435.06	27,516,750.00
1933	1,975,000.00	1,290,992.54	3,265,992.54	27,041,750.00
1934①	2,175,000.00	1,250,010.02	3,425,010.02	25,866,750.00
1935①	5,675,000.00	1,225,541.73②	6,900,541.73	25,691,750.00
1936①	2,950,000.00	1,089,213.37	4,039,213.37	23,441,750.00
1937③	2,800,000.00	984,228.06	3,784,228.06	21,641,750.00
1938③	3,550,000.00	877,764.27	4,427,764.27	18,841,750.00
1939	2,000,000.00	776,394.23	2,776,394.23	16,841,750.00
1940	2,075,000.00	683,724.19	2,758,724.19	14,766,750.00
1941	2,150,000.00	589,085.40	2,739,085.40	12,616,750.00
1942	2,125,000.00	493,790.36	2,618,790.36	10,491,750.00
1943	2,070,250.00	399,995.32	2,470,245.32	8,421,500.00
1944	1,915,500.00	308,610.28	2,224,110.28	6,506,000.00
1945	1,453,000.00	227,913.99	1,680,913.99	5,053,000.00
1946	1,053,000.00	166,998.95	1,219,998.95	4,000,000.00
1947	650,000.00	126,765.80	776,765.80	3,350,000.00
1948	500,000.00	104,109.53	604,109.53	2,850,000.00
1949	425,000.00	86,797.01	511,797.01	2,425,000.00
1950	325,000.00	72,171.99	397,171.99	2,100,000.00
1951	275,000.00	62,046.97	337,046.97	1,825,000.00
1952	275,000.00	52,984.45	327,984.45	1,550,000.00
1953	275,000.00	43,921.93	318,921.93	1,275,000.00
1954	275,000.00	34,859.41	309,859.41	1,000,000.00
1955	275,000.00	25,796.89	300,796.89	725,000.00
1956	200,000.00	17,531.25	217,531.25	525,000.00
1957	150,000.00	12,187.50	162,187.50	375,000.00
1958	150,000.00	8,437.50	158,437.50	225,000.00
1959	150,000.00	4,687.50	154,687.50	75,000.00
1960	75,000.00	937.50	75,937.50	.....
	$55,650,000.00	$30,251,906.40	$85,901,906.40	
Less refunding and temporary financing bonds	11,450,000.00	.....	11,450,000.00	
Totals①	$44,200,000.00	$30,251,906.40	$74,451,906.40	

① Includes Coast Bridge short-term bonds.

② Includes $4,866.50 refund to cover accrued interest paid in by Ladd & Bush, Bankers, on Coast Bridge bonds.

③ Includes retirement of 1937 and 1938 short-term bonds.

TABLE V

State Highway Bonds Issued, 1917 to 1942

Year	Par Value of Bonds Sold: Long-term Construction Bonds	Par Value of Bonds Sold: Short-term Bonds for Temporary Financing	Time for Retirement	Bonds Retired Same Year
1917	$ 400,000	$	8 years	$ .....
	1,000,000	.....	25 years	.....
1918	1,440,000	.....	25 years	.....
1919	800,000	.....	14 years	.....
	6,500,000	.....	25 years	.....
1920	9,000,000	.....	25 years	.....
1921	.....	3,000,000①	4 years	.....
	8,560,000	.....	25 years	.....
1922	5,500,000	.....	25 years	125,000
1923	2,500,000	.....	25 years	179,750
1924	.....	.....	.....	334,500
1925	3,000,000	.....	25 years	3,797,000
1926	.....	.....	.....	1,197,000
1927	.....	.....	.....	1,600,000
1928	.....	.....	.....	1,750,000
1929	.....	.....	.....	1,825,000
1930	1,500,000②	.....	25 years	1,925,000
1931	1,000,000③	.....	25 years	1,975,000
1932	.....	1,000,000④	6 months	2,975,000
1933	.....	1,500,000⑤	5 years	1,975,000
1934	.....	1,000,000⑥	1 year	2,175,000
1935	3,000,000⑦	.....	25 years	3,175,000
	.....	1,000,000⑥	6 months	1,000,000
	.....	1,500,000⑥	10 days	1,500,000
1936	.....	700,000⑥	10 days	2,950,000
1937	.....	1,000,000⑧	6 months	2,800,000⑨
1938	.....	750,000⑧	8 months	3,550,000⑩
1939	.....	.....	.....	2,000,000
1940	.....	.....	.....	2,075,000
1941	.....	.....	.....	2,150,000
1942	.....	.....	.....	2,125,000
Totals	$44,200,000	$11,450,000	.....	$45,158,250
Bonds Retired	33,708,250	11,450,000	.....	.....
Bonds outstanding end of 1942	$10,491,750	$	.....	$ .....

① Account of unfavorable bond market, $3,000,000 of 4-year bonds were sold with intention to refund in 1925 with long-term bonds at lower interest rate.

② This bond sale made to enable state to match available federal aid.

③ This bond sale made to finance state relief labor program.

④ This sale of 6-months bonds was made to overcome deficit caused by change in date of licensing cars from January 1st to July 1st.

⑤ This sale of 5-year bonds was made to finance state relief program.

⑥ These sales of short-term bonds made to finance the construction of the five Oregon Coast bridges.

⑦ This sale was made to refund a like amount of Oregon Coast Bridge bonds, resulting in a saving of interest.

⑧ These sales of short-term bonds were made to enable the State to utilize its winter income in carrying on its federal aid program during the preceding summer construction season.

⑨ Includes $500,000 of 1937 short-term bonds retired December 31, 1937.

⑩ Includes $500,000 of 1937 short-term bonds retired January 31, 1938, and $750,000 of 1938 short-term bonds retired December 31, 1938.

TABLE VI

Estimated Receipts and Disbursements, 1943 and 1944

	1943 (Estimated)	1944 (Estimated)
Receipts:		
Motor vehicle license fees and operator's fees	$ 2,900,000	$ 2,400,000
Gasoline tax	7,350,000	4,630,000
Motor transportation fees	1,500,000	1,370,000
Fines	30,000	20,000
Cash discounts	10,000	10,000
Federal co-operative funds	5,425,000	800,000
Gross receipts	$17,215,000	$ 9,230,000
Deduct for contributions to counties and to state police department	2,983,000	2,386,000
Net income for state highway purposes	$14,232,000	$ 6,844,000
Balance on hand at beginning of year	2,839,000	3,526,000
Total amount available for disbursement	$17,071,000	$10,370,000
Disbursements:		
Capital outlays	$ 4,950,000	$ 190,000
Maintenance	5,060,000	5,150,000
Bond expense	2,472,000	2,226,000
Operation and miscellaneous	1,063,000	767,000
Total disbursements	$13,545,000	$ 8,333,000
Balance on hand, end of year	$ 3,526,000	$ 2,037,000

General Comments

State Maintenance of Heavy Traffic City Streets

Under a policy adopted during the biennium, the Highway Commission is assisting the cities in the maintenance of certain city streets which are not on the state highway system, but which carry heavy truck traffic. This applies to cases where such streets are subject to heavy commercial truck traffic and in particular to logging truck traffic. Accordingly, contracts were entered into for the maintenance of city streets not upon the state highway system but subject to heavy truck travel in all cities greater than 250 population. The total number of agreements executed was 157.

Pursuant to this decision, the State Highway Commission will have spent in maintenance and improvement on such city streets during the calendar year of 1942 approximately $160,000.

Bridge Survey of Columbia River

Under Chapter 202 of the Oregon Laws of 1941, the Oregon State Highway Commission was empowered to construct, reconstruct, purchase, rent, lease or otherwise acquire, improve, operate and maintain a bridge or bridges over the Columbia river to the state of Washington, and to enter into all necessary contracts or agreements therefor with the United States or any of its agencies, the State of Washington or any of its political subdivisions, or any of its agents, any of the political subdivisions of the State of Oregon, and any person, individual, association, corporation, domestic or foreign; to establish free or toll bridges, to pledge the same and the revenues thereof for financial loans, providing for acceptance of donations or gifts of land, money or other valuable things, and providing for the exercise of the power of eminent domain.

As a preliminary to the consideration of the use of such power, the Highway Commission, acting jointly with the State of Washington, has carried on, during the past two years, a survey of the present existing facilities and of possible new connections between the two states involving the bridging of the Columbia river. This has required a great mass of detail and has included not only a factual survey but also an economic study of the benefits to be secured by the building of new facilities or the acquiring of existing ones, and of the probable solvency of such facilities after they have been acquired or constructed.

Preparation of a report on the survey has been delayed by several causes, the principal of which is the shortage of qualified technical help, many of the technical employees of both the Oregon and Washington Highway Departments having left for service with the armed forces. In addition to that, the Departments have been called upon to design and construct many access roads of an emergency nature. Such projects of necessity have been given priority in the utilization of the skilled personnel.

Present limitations on the use of critical materials effectively prevent the construction of new bridges at this time,

while the reduction in revenues likewise operates to prevent the acquisition of existing facilities. For that reason, the Commission has not considered it necessary to press the matter. It will, however, continue the study and investigation to the end that all required data be available for the consideration of the Highway Departments of the two states immediately following the termination of the war.

Labor Shortage

During 1942 considerable difficulty was experienced in maintaining labor forces sufficient to carry on the work of the Department, particularly that of maintenance. Approximately 640 employees were lost to the Department either through selection or enlistments in the armed services or through the movement of the men into the higher paying war industries. Through the summer months the employment was approximately 20 per cent below the summer of 1941.

Heavy losses have been experienced in the ranks of technical employees, but most of these losses have been offset, at least in part, by curtailment of the construction activities in which the majority of them were engaged.

MAINTENANCE HEADQUARTERS AT MADRAS IN JEFFERSON COUNTY

The shortage of men for special crews carrying on oiling and pavement repair work during the summer months was the most acute. The Highway Department was able to keep the crews in operation only by drawing on the regular section maintenance crews and by the employment of boys, old men, and women. Efficiency was necessarily low due to the lack of experienced workers. In anticipation of even more serious shortage of labor in 1943, the Department plans to undertake the training of women in the handling of mechanized equipment. The expansion of crews for work that can be performed only during the summer months requires approximately 700 workers and it is expected that in 1943 a high percentage of these workers will of necessity be women.

The need for maintaining highway lines of communication is even greater in time of war than in time of peace because of the greater emergencies present. The Highway Commission will use every means in its power to maintain the highway transportation ways in a satisfactory condition for the movement of war commodities, for the movement of farm and forest products to market, and for the emergency movement of troops.

Legislative Recommendations

In view of the present war situation and the expected drastic reduction in highway revenues, the State Highway Commission respectfully recommends to the state legislature that no change be made in road-user fees or taxes.

NEW ROUTE OF OREGON COAST HIGHWAY ON NEAHKAHNIE MOUNTAIN IN TILLAMOOK COUNTY

Section Two

REPORT

OF THE

State Highway Engineer

TO THE

State Highway Commission

OF THE

STATE OF OREGON

1941-1942

R. H. BALDOCK, State Highway Engineer

LETTER OF TRANSMITTAL

Salem, Oregon,

January 1, 1943.

To the Honorable State Highway Commission,

Henry F. Cabell, Chairman,

Huron W. Clough, Commissioner,

Herman Oliver, Commissioner.

Gentlemen:

I have the honor to submit to you herewith the report of the State Highway Engineer for the period July 1, 1940, to June 30, 1942.

Respectfully yours,

R. H. BALDOCK,

State Highway Engineer.

Section Two

REPORT OF THE

STATE HIGHWAY ENGINEER

TO THE

STATE HIGHWAY COMMISSION

1941-1942

INTRODUCTION

This portion of the biennial report has for its purpose the presentation of a brief outline of the various findings and activities of the Highway Department during the current biennium, together with such statistical information as is necessary for a proper understanding of the problems and activities of the Department. The section which immediately follows comprehends a presentation of the organization of the Highway Department, and a brief description of the duties of the various administrative and executive heads. Following this is a report on the progress made during the biennium in the improvement of state highways, which portion, in turn, is followed by reports of the various subdivisions of the highway department organization, as follows:

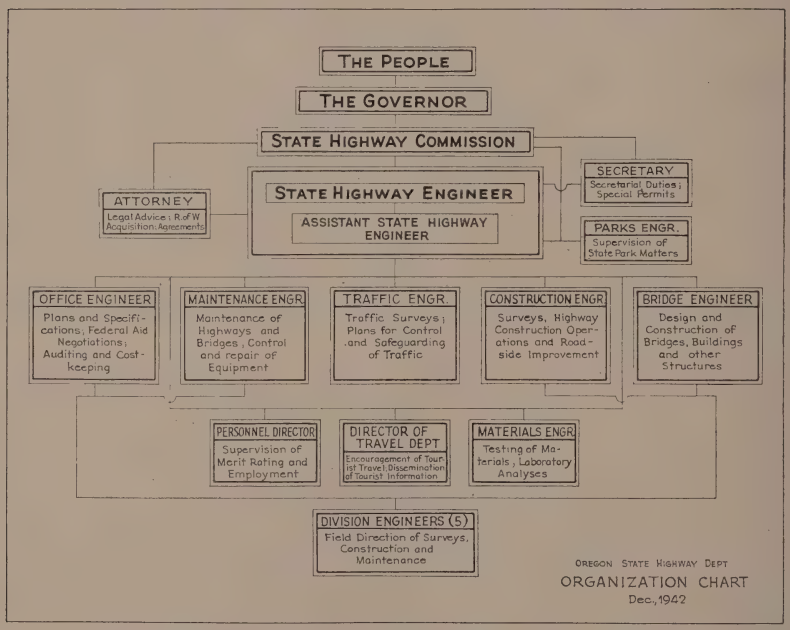
	Page
Financial Report by the Office Engineering Department	67
Report of the Construction Department	91
Report of the Bridge Department	99
Report of the Maintenance Department	105
Report of the Traffic Engineering Department	125
Report of the Legal and Right of Way Departments	129
Report of the Materials Department	133
Report of the State Parks Department	137
Report of the Travel and Information Department	142

HIGHWAY DEPARTMENT ORGANIZATION

Administrative and Supervisory Organization

The administrative organization of the Highway Department consists of the State Highway Engineer, the Assistant State Highway Engineer, the Attorney, and the Secretary. The executive staff consists of the Office Engineer, the Maintenance Engineer, the Construction Engineer, the Bridge Engineer, the Traffic Engineer, the Parks Engineer, the Materials Engineer, the Director of the Travel and Information Department, and the Personnel Director. The line or field organization consists of five Division Engineers with headquarters at Portland, Salem, Roseburg, Bend, and La Grande.

The integration of the organization is indicated by the chart given hereinbelow, and the paragraphs descriptive of the departments of the various administrative and executive officers which follow:



Assistant State Highway Engineer: The Assistant State Highway Engineer is the acting head of the Department in the

absence of the State Highway Engineer and, in addition, carries at all times a certain delegated portion of the administrative load. The Staff Officers report to the Assistant State Highway Engineer in connection with certain definite activities, and all personnel matters are under his control. C. B. McCullough is the Assistant State Highway Engineer.

Attorney: The Attorney acts as general counsel for the Highway Commission, has charge of all matters of a legal nature, and superintends the acquisition of all property for rights of way, quarries, and other purposes. J. M. Devers is Attorney, and J. W. DeSouza is Assistant Attorney, for the Commission.

Secretary: The Secretary has charge of all details of a secretarial nature, including the preparation and compilation of the minutes of all Commission meetings, the issuance of highway use permits, and Commission correspondence. H. B. Glaisyer is Secretary for the Highway Commission.

Office Engineer: The Office Engineer has charge of the preparation of highway plans and specifications, auditing, cost keeping and federal aid negotiations. S. H. Probert is Office Engineer.

Construction Engineer: The Construction Engineer supervises field engineering work involved in the locating, planning and constructing of highways, including economic surveys, project analyses and roadside beautification. All contract work other than bridge and building work is under his direction. H. G. Smith is Construction Engineer.

Maintenance Engineer: The Maintenance Engineer superintends the work of maintaining highways and bridges, and supervises the upkeep and operation of equipment owned by the Department. E. A. Collier is Maintenance Engineer.

Bridge Engineer: The Bridge Engineer supervises the design and construction of bridges, grade separations, buildings, and other major structures. G. S. Paxson is Bridge Engineer.

Traffic Engineer: The Traffic Engineer has charge of the problems involved in the direction and control of highway traffic. John Beakey is Traffic Engineer.

Parks Engineer: The State Parks Engineer superintends the operation, maintenance and improvement of state parks. S. H. Boardman is the State Parks Engineer.

Materials Engineer: The Materials Engineer has charge of the departmental testing laboratories and of the inspection of materials in the field. N. M. Finkbiner is Materials Engineer.

Director of Travel and Information: The Director of the Travel and Information Division has charge of the Department's travel promotion campaign and the Division of Tourist Travel Information. H. B. Say is Director of this department. During Mr. Say's absence on military duty, the work of the department is being directed by Oscar Cutler.

Personnel Director: The Personnel Director attends to the keeping of merit rating records and to the interviewing and classifying of applicants for employment. Duties of the Personnel Director are at present being attended to by James McFarland.

Field Engineering Organization

In the performance of the field duties incidental to the supervision and direction of the construction, maintenance and operation of state highways, there are five Division Engineers reporting to the five executive Staff Officers above named (Office Engineer, Maintenance Engineer, Construction Engineer, Bridge Engineer, and Traffic Engineer).

Each division engineer supervises and directs surveys, construction work and maintenance work on the state highways within his division. He acts as the local representative of the State Highway Department in dealing with county officers, contractors, and the public in general. In other words, the division engineers are line officers having direct charge of the work, and the work is coordinated so as to bring about a uniformity in surveys, construction and maintenance by the five staff officers, each of whom acts as the personal representative of the state highway engineer in his negotiations with the division engineers.

The maintenance is directed locally by 16 resident maintenance engineers, acting as maintenance superintendents, located within the five divisions, who have direct supervision of 127 section crews, each working under the direction of a section foreman. The maintenance superintendents also supervise the work of the extra gang crews in removing snow, removing slides, re-oiling surfacings, patching pavements, repairing bridges, etc., which work is largely seasonal in character. Their duties are, in general, to see that the proper materials and equipment are supplied, to supervise the work of the section crews and extra gangs, to keep an accurate account of the expense incurred, and in all respects to look after the upkeep of the highways within their respective territories.

When highway location surveys are to be made in a division, a locating engineer is assigned by the construction engineer to perform the work under the supervision of the division engineer. The construction projects are handled by resident construction engineers who are moved from one division to another as the distribution of the work may require. Each resident construction engineer is in charge of one or more contract jobs and his duties are to measure the quantities of work for which the contractor is entitled to payment, to inspect the workmanship and materials, to insure compliance with the specifications, and to otherwise look after the interests of the State in connection with all matters concerned.

Division No. 1 is in charge of W. C. Williams, with headquarters in Portland. It comprises the counties of Multnomah, Clackamas, and Washington, and parts of Yamhill, Columbia, and Hood River.

Division No. 2 is in charge of F. D. Eason, with headquarters in Salem. It comprises the counties of Marion, Linn, Benton, Polk, Lincoln, Tillamook, and Clatsop, and parts of Columbia and Yamhill.

Division No. 3 is in charge of K. D. Lytle, with headquarters in Roseburg. It comprises the counties of Lane, Douglas, Coos, Curry, Josephine, and Jackson.

Division No. 4 is in charge of W. E. Chandler, with headquarters in Bend. It comprises the counties of Wasco, Sherman, Jefferson, Crook, Deschutes, Klamath, and Lake, and parts of Hood River, Gilliam, Wheeler, and Harney.

Division No. 5 is in charge of Paul Van Scoy, with headquarters in La Grande. It comprises the counties of Morrow, Umatilla, Union, Wallowa, Baker, Malheur, and Grant, and parts of Gilliam, Wheeler, and Harney.

Equipment Department

The Equipment Department is directly under the supervision of the Maintenance Engineer. In view of the fact that practically all of the equipment is used in maintenance operations, control of this department by the Maintenance Engineer, has proven very satisfactory. The Equipment Department repairs and maintains the equipment for which a rental charge is made which includes a depreciation charge which is decreased each year of the life of the equipment until the first cost is amortized. A perpetual inventory is kept of all state property, and each employee is held responsible for all equipment placed in his charge until relieved of that responsibility by proper authority. Wornout and obsolete equipment and materials, scrap metal, etc., are disposed of by a survey board consisting of one of the State Highway Commissioners, the State Highway Engineer, and one of the staff officers who appraise the value and dispose of the material on the basis of competitive bids.

Equipment repair shops are located at Salem, La Grande, Klamath Falls, and Coquille.

PROGRESS IN HIGHWAY IMPROVEMENT

General Summary

The progress made during 1941 and 1942 in the improvement of highways under the supervision of the State Highway Department, expressed in mileages of different classes of work performed, is as follows:

TABLE VII

Classification of Work	Primary Highways (Miles)	Secondary Highways (Miles)	County Highways (Miles)
New Construction Work:			
Concrete paving	9	4	.....
Bituminous paving	6	1	4
Bituminous macadam wearing surface	80	9	20
Oil mat wearing surface	90	183	41
Rock and gravel surfacing	83	98	21
Grading	61	19	19
Bridges	49	21	8
Reconstruction, Widening, Etc.:			
Pavement reconstruction and widening	21	1	9
Non-skid treatment of pavement	20	.....	.....
Oiled surface reconstruction	48	23	2
Rock and gravel resurfacing	153	135	46
Regrading and widening	147	142	32

At the close of 1942, the status of improvement of the primary and secondary systems of state highways is as follows:

TABLE VIII

Type of Improvement	Primary Highways (Miles)	Secondary Highways (Miles)
Concrete pavement	336	61
Bituminous pavement	532	135
Bituminous macadam wearing surface	1,182	38
Oil mat wearing surface	2,317	983
Rock and gravel surfacing	242	696
Graded	101	211
Unimproved	99	264
Totals	4,809	2,388

The improvement status of each of the 55 state primary highways, of each of the 114 state secondary highways and of county roads, is shown in detail in Section Three of this report. It is of interest to note that the mileage of unimproved roads on the primary and secondary systems has been reduced by construction work performed during the biennium in the amount of 57 miles, and that 160 miles of roadway on those systems has been improved from the status of unimproved and/or graded

SUNSET TUNNEL ON WOLF CREEK HIGHWAY IN WASHINGTON COUNTY

HIGHWAY WIDENING AND SEA WALL CONSTRUCTION
AT DEPOE BAY IN LINCOLN COUNTY

roadbeds to that of rock surfaced or higher type of improved surface.

The progress made in highway improvement during the two-year period covered by this report has been notable on the primary system by the completion of several major projects which have contributed to safer and more convenient travel on the main highway arteries and by steady progress in the improvement and development of 26 of the 55 primary highways in the State system. The progress made in improving the secondary system during the biennium is indicated by the fact that 615 miles of improvement work has been performed on that system during the past two-year period as compared to 389 miles of similar improvements made on the secondary system during 1939 and 1940. The improvements made on county roads and city streets, under federal authority, have involved 194 miles of new construction and reconstruction work during 1941 and 1942, as compared to 152 miles of similar work performed during the preceding two-year period.

Primary State Highways

The improvement of the primary state highway system as a whole has been materially advanced during the biennium by the completion of over 110 construction projects and the partial completion of some 14 additional construction projects underway at the close of 1942. The progress made during the biennium on those of the primary state highways which have been improved to considerable extent, with a brief decription of some of the major construction projects entering into the improvement of each highway, is more specifically described in the following account:

Pacific Highway, U. S. Nos. 99, 99W and 99E: The improvement of the Pacific Highway has been carried forward by the grading of 14 miles of roadbed on new alignment, the widening and resurfacing of 21 miles of narrow and worn pavement and the construction of over seven miles of high-type pavement surface. In addition to the above, construction projects now underway, but as yet uncompleted, will add approximately 12

miles of bituminous macadam and paved surface in replacement of existing pavements which are inadequate to serve the heavy traffic demands placed upon them.

On the Pacific Highway West (U. S. No. 99W), the Front Avenue project in Portland has been under construction between Ankeny and Sheridan streets, a distance of 1.37 miles. This project involved the removal of many old business blocks, the reconstruction of approaches to the Hawthorne and Morrison Street bridges, the construction of a six-lane primary highway with additional parking lanes, service streets, etc., and various traffic control features, including a city street separation structure. The biennium has seen the completion of a 0.50 mile unit of the project and approximately 87 per cent of all other work required to complete the project now underway. The completed project will provide an easily traveled highway route bordering the congested west-side Portland business district, free from local cross traffic, yet serviceable to local traffic and to through highway traffic alike, with safety and convenience. At Onion Flat, about 4.6 miles south of Tigard, 0.76 mile of grading and paving has been performed to eliminate a hazard caused by the presence of a steep grade and restricted sight distance in the old, narrow pavement surface. A major improvement in the Pacific Highway West between Monmouth and Corvallis has been undertaken, primarily due to the creation of an army cantonment area in the vicinity with its increased demand on highways tributary thereto. The project as a whole involves the construction of 6.7 miles of entirely new bituminous macadam surfaced highway, the widening of 2.4 miles of existing highway southerly from Monmouth and the widening of 5.6 miles of existing highway northerly from Corvallis, including the construction of three new bridges and one railroad grade separation structure and the widening of four existing bridges. This bridge construction work is completed as this report is written, as is also a portion of the widening and resurfacing of the existing pavement north from Corvallis. The completion of the project is expected in the spring of 1943. Upon completion, the project will provide a new modern highway constructed to high standards of line and grade and

free from railroad grade crossings and other hazards of curvature and grade now obtaining on the present highway route.

On the Pacific Highway East (U. S. 99E), 2.22 miles of grading and paving has been performed between Ilahee School (about seven miles south of Salem) and Steiwer Hill, which improvement is a continuation of the planned reconstruction of the highway between Salem and Albany. The reconstructed highway south from Salem has been extended, by this improvement, a distance of 9.26 miles. A contract for the reconstruction and widening of the south approach to the bridge over the Willamette river at Harrisburg is now in progress with completion expected in the early part of 1943.

On the Pacific Highway (U. S. No. 99), 1.23 miles of grading and paving has been completed near the west corporate limit of Eugene, the improvement providing a new two-lane pavement for use of south-bound traffic routed into Eugene on 7th Avenue and the widening of a previously constructed pavement extending from the 6th Avenue connection northerly to the existing railroad grade separation structure northwest of Eugene. The biennium has witnessed the beginning of construction on a project of considerable importance, involving the reconstruction of the southeast highway approach to Eugene, and of the Eugene-Springfield section of the highway. On this project, the progress to date consists of the completion of approximately 2.8 miles of new railroad roadbed, the greater portion of which is on entirely new alignment from 8th Avenue and Franklin Boulevard easterly and closely paralleling the Willamette river to Judkins Point. This shift to the north of the existing railroad tracks will permit the future development of a four-lane highway pavement along the old railroad route and will also provide a desirable location for the carrying of the new highway over the relocated railroad at a point just east of Judkins Point. Contracts for the construction of the Judkins Point overcrossing structure and for the construction of a 1.1 mile unit of the new highway route to connect therewith have been awarded and completion is expected in the spring of 1943. Between Rice Hill and Turkey Hill, 2.22 miles of grading and paving, completed during the biennium, has closed a

gap in a 5.8-mile section of reconstructed highway which has eliminated a particularly hazardous section of narrow and winding pavement between Yoncalla and Oakland. On a mountainous section of the highway between Wolf Creek and Grants Pass, probably the most notorious section of tortuous curves and steep grades now remaining on the entire highway, a marked improvement is promised by the undertaking of a reconstruction project between Grave creek and Jumpoff Joe creek over Sexton mountain. The progress to date on this section consists of the completion of 6.61 miles of grading of a new wide roadbed to modern standards, and, as this report is written, the construction of a heavy rock base and bituminous macadam wearing surface is underway. From the Josephine County line southerly to Central Point, 20.33 miles of the existing 16-foot pavement has been "planed" by mechanical means to a smooth surface, widened to a minimum width of 19 feet and resurfaced with a non-skid type oil mat wearing surface, materially improving the riding qualities and safety of the travelway. At the north entrance to Medford, 0.54 mile of pavement widening has been completed on Riverside Avenue

RECONSTRUCTED PACIFIC HIGHWAY SOUTH OF RICE HILL IN DOUGLAS COUNTY

and 0.75 mile of new pavement has been constructed on a new route for south-bound traffic along Court street; these improvements being made to better serve increased traffic due to the presence of a large military cantonment tributary to the city. Further details of highway development in the vicinity of Medford will be found in the report on the Crater Lake Highway.

Expenditures for construction activities on the Pacific Highway (U. S. Nos. 99, 99E and 99W) during the biennium amounted to $2,740,400.

Columbia River Highway and Old Oregon Trail, U. S. No. 30: Progress in the improvement of the Columbia River Highway and Old Oregon Trail has consisted of 20 miles of roadbed construction, 10 miles of bituminous-treated surfacing and over four miles of high-type paving. At Astoria, the plan for rerouting highway traffic through the city has been carried forward by the grading of 0.15 mile of revised alignment and the construction of 0.40 mile of four-lane pavement on the Astor Street-Bond Street Unit of the project. At Tongue Point, just east of Astoria, a project is now underway which involves the grading and paving of 0.98 mile of highway roadbed to modern standards on new alignment. The new route lies to the south and outside of the Tongue Point Naval Base. This improvement, which is scheduled for completion in the early summer of 1943, will materially reduce the curvature extant on the old highway and reduce travel distance by approximately one-half mile. The grade widening of 0.52 mile of roadbed and the pavement widening and resurfacing of 0.64 mile of highway at St. Helens has relieved the traffic congestion formerly existent in this vicinity due to suburban development. The planned reconstruction of the highway between St. Helens and Portland has been brought to near completion by the construction of a 3.09 mile section of grading and paving work between a point one mile north of Scappoose to the Multnomah County line, 1.7 miles of which section is on new and straightened alignment. A short unit of highway at Scappoose has not yet been reconstructed to its ultimate desirable standard.

On the new route at water grade for the Columbia River Highway between Troutdale and Bonneville, 6.47 miles of road-

bed grading, 0.57 mile of rock toe embankment, 6.0 miles of rock topping and 3.6 miles of rock slope protection has been constructed during the biennium, the roadbed grading work having involved the placing of approximately 4,400,000 cubic yards of hydraulic dredged embankment material. Although the work performed to date on this major development is not available to highway traffic, it does represent the completion of a large portion of the project and has materially hastened the time when the new route may be placed in service.

From Quinton to Lang Canyon (about 5.6 miles west of Arlington) an 8.11 mile section of highway has been regraded and surfaced with bituminous macadam, thereby extending the recent improvement between Lang Canyon and Arlington to provide a continuous modernized highway for 14.7 miles between Quinton and Arlington. At the south approach to Hermiston, the grading and bituminous surfacing of 0.70 mile of relocated highway has improved the highway alignment and serviceability at this point. Near the Troy Ranch, about 14 miles easterly of Baker, 0.73 mile of grading and bituminous macadam surfacing was constructed on new alignment elim-

RECONSTRUCTED SECTION OF THE DALLES-CALIFORNIA HIGHWAY NORTH OF KLAMATH FALLS

inating four curves on the old highway route. A major improvement in the highway has been made by the elimination of the grade crossing of the Union Pacific Company railroad tracks in Nyssa, which has been accomplished by the construction of a reinforced concrete and steel structure carrying the railroad tracks across the depressed new highway. This project also included the grading of 0.45 mile of roadbed, the widening of 1.98 miles of existing highways, 0.30 mile of bituminous macadam surfacing, and the paving of 0.15 mile of highway.

Expenditures on the Columbia River Highway and on the Old Oregon Trail for construction work performed during the biennium amounted to $1,844,500.

The Dalles-California Highway, U. S. No. 97 and Oregon Nos. 23 and 50: During the biennium, the first unit of a proposed relocation of the highway from Madras to the Crooked River bridge has been undertaken by the grading of 10.40 miles of new roadbed from Madras southerly to a point about 2.7 miles south of Culver. This section will provide a saving in distance over the present highway route of 1.3 miles and eliminates one railroad grade crossing. Between Algoma and Terminal City, 5.04 miles of grading and 4.38 miles of bituminous surfacing has been constructed on new alignment and is saving 1.8 miles of travel over that required on the old route between the termini of the project.

Expenditures during the biennium for construction work performed on The Dalles-California Highway amounted to $327,200.

John Day Highway, U. S. No. 28 and Oregon No. 19: Improvements made on this highway during the biennium consisted of the replacement of two old bridge structures, 15.4 miles of grading, 19.9 miles of surfacing and 23.7 miles of oil mat and bituminous macadam wearing surface. The two new bridge structures, one at Rock Creek and one over the John Day river (Goose Rock bridge), were constructed on new and improved alignment involving 0.22 mile of new highway roadbed construction. 13.10 miles of surfacing and oiling work was performed between Butte Creek and Service Creek which has improved the stability of this section to a marked degree.

Between Prairie City and Austin Junction, a major improvement project has been commenced which includes an entirely new highway location on the westerly slope of Dixie mountain for a distance of 8.6 miles. The Public Roads Administration has graded 5.74 miles of the new location, while the State has graded the easterly 2.87 miles of the new line. 3.81 miles of oiling has been completed from Prairie City easterly to the west terminus of the relocated line and 6.53 miles of regrading and bituminous surfacing work has been completed from the easterly terminus thereof (Dixie Pass) easterly to Austin Junction. All work has been performed to high standards and, upon completion of surfacing on the relocated line, the project as a whole will contribute materially to the serviceability of the highway.

During the biennium, the amount of $686,300 has been expended for construction on the John Day Highway.

Central Oregon Highway, U. S. No. 20: Improvements made on the Central Oregon Highway during the biennium by contracts consisted of the regrading, resurfacing and oiling of 6.88 miles of highway roadbed between Oakerman Ranch and Sagehen Hill, and the widening and surfacing of 0.39 mile of highway roadbed in the city of Burns. Expenditures for the above construction work on the Central Oregon Highway amounted to $115,500.

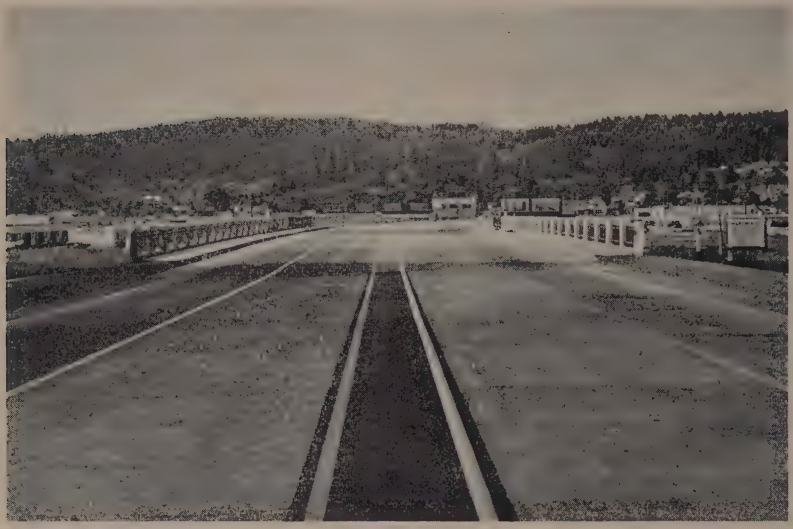
Oregon Coast Highway, U. S. No. 101: Work performed on the Oregon Coast Highway during the biennium has included the contracting and completing of four bridge structures, 4.8 miles of grading, 13.5 miles of rock surfacing, 11.7 miles of oil mat and bituminous macadam surfacing and 1.3 miles of paving.

Due to the increase in pedestrian travel on the highway between Seaside and Gearhart, 2.15 miles of oiled rock footpath has been constructed along the westerly side of the highway right of way between those points, which improvement has eliminated the hazards formerly encountered on this section due to the joint use of the pavement by both pedestrian and motor vehicle traffic. The biennium has witnessed the opening to through travel of a new route between Cannon Beach Junction and the Wheeler overhead crossing, via the coast line, by

the completion of grading work and the construction of 9.07 miles of bituminous macadam surfacing on the Hug Point-Manzanita Section. The new route, as a whole, saves 5.65 miles of travel distance over the former interior route and provides throughout its length innumerable panoramas of virgin forests, mountain streams, expansive beaches and intriguing coastal rock formations. Along the side of historic Neahkahnie Mountain, for nearly two miles, the new highway traverses precipitous slopes several hundred feet above the ocean and presents an outstanding example of modern construction performed in difficult terrain with due regard to the preservation of the natural beauty of the country. Of special interest on this section was the construction of natural rock facings on exposed structure surfaces, the use of native rock in protective walls, the providing of hard-surfaced footpaths and the development of numerous bituminous surfaced parking areas; all contributing to the general improvement, and enhancing the safety and pleasure of those who stop to enjoy the wonderful views afforded by the highway, as well as those who travel uninterruptedly upon its smooth, wide surface.

At Depoe Bay, the widening and bituminous macadam surfacing of a 1.17-mile section of the highway has eliminated traffic congestion at this popular beach resort. The completion of 1.14 miles of grading on the Miner Creek-Spencer Creek Section marks the initial step in the planned reconstruction of the highway route between Depoe Bay and Newport. Between Newport and the Yaquina Bay bridge, 0.61 mile of grade widening, surfacing and oiling has been done to provide a four-lane highway travelway to accommodate the heavy traffic between the popular Yaquina Bay state park and Newport.

At Marshfield, progress in the ultimate development of a new highway from North Bend through Marshfield has been advanced by the construction of 0.86 mile of grading and paving in the northerly portion of the city and the grading and paving of 0.39 mile of new highway in the southerly part of the city. The improvement at Bandon which was undertaken during 1940 has been completed during the biennium and consists of 0.59 mile of new highway roadbed and four-lane width



IMPROVEMENT ON OREGON COAST HIGHWAY IN SOUTH MARSHFIELD IN THE VICINITY OF COAL BANK SLOUGH BRIDGE

STREET IMPROVEMENT ON OREGON COAST HIGHWAY IN THE TOWN OF BROOKINGS IN CURRY COUNTY

of bituminous macadam surfacing. The Public Roads Administration has completed a new bridge structure over Hubbard creek, about 1.5 miles south of Port Orford, which structure will become a unit of a relocated section of highway which is planned for future construction. The relocation and reconstruction of 0.73 mile of highway at Brookings has materially improved the highway route through the city and provides a bituminous macadam surface of 57-foot width within the business district and 22-foot width at the north and south approaches to the city.

Expenditures on the Oregon Coast Highway for construction work performed during the biennium amounted to $1,072,200.

Wallowa Lake Highway, Oregon No. 82: Work performed on this highway during the biennium consisted of the reconstruction to improved standards of 1.67 miles of grading, surfacing and oiling and the construction of a reinforced concrete roadway viaduct on the Follett Ranch-Cold Canyon Section. The cost of this project was approximately $134,200.

Baker-Homestead Highway, Oregon No. 86: During the biennium, 8.18 miles of this highway has been improved and widened, surfaced and oiled between Flagstaff hill and Ruckles creek at a cost of $80,400.

Santiam Highway, U. S. No. 20: The biennium has witnessed the performance of 21.1 miles of grading, 31.5 miles of rock surfacing, 19.2 miles of bituminous macadam surfacing, and 6.4 miles of paving on the Santiam Highway. Between Crabtree Corner and Lebanon, 6.38 miles of the existing highway has been widened and paved, completing the improvement between Albany and Lebanon. 10.39 miles of contracted rock surfacing and 11.70 miles of state-force oiling from Foster to Cascadia has brought this section to the status of an oiled macadam roadway. From Canyon Creek to Trout Creek, 7.54 miles of new highway has been graded, surfaced and provided with oil mat and bituminous macadam wearing surfaces. Also, the Public Roads Administration has completed the regrading and surfacing of a 7.23-mile section on the Hogg Rock-Suttle Lake Section and State forces have placed an oiled macadam

surface on this section. Except for a sixteen-mile section of graded and partially surfaced roadway between Toll Creek and the junction with the North Santiam Highway, the entire highway has been improved to the status of an oiled macadam roadway throughout. Expenditures made during the biennium for construction work on the Santiam Highway amounted to $551,700.

Klamath Falls-Lakeview Highway, Oregon No. 66: A 4.30-mile section of the highway between the Forest Boundary and Cottonwood Creek has been graded, surfaced and oiled by the State to improved standards at a cost of $120,750, and marks the completion of the State's portion of the planned improvement of the route to the status of an oiled surface roadway. The Public Roads Administration is now engaged in the regrading, surfacing and oiling of a 5.24-mile section between Quartz Mountain and Smalley Ranch at an estimated cost of $200,000 and the completion of this work, expected in the summer of 1943, will result in the providing of an oiled surface roadway on good grade and alignment throughout the length of the highway.

Crater Lake Highway, Oregon No. 62: A project of major significance on the Crater Lake Highway during the biennium consisted of the grading, surfacing and paving of 8.46 miles of relocated highway between Camp White and Medford. This new route closely parallels the existing highway for 6.8 miles southerly from the northerly limits of Camp White and then leaves the present highway in a southwesterly direction on new alignment to intersect the Pacific Highway at a new highway junction near the north corporate limit of Medford. The improvement provides a new two-lane pavement to supplement the present traveled highway in serving the increased traffic developed by military activities in the vicinity, and creates a new junction between the Crater Lake and Pacific Highways at a location free from the congestion of city traffic formerly obtaining at the old junction in Medford. Contracts for construction work performed on the Crater Lake Highway during the biennium involved an expenditure of approximately $760,000.

Alsea Highway, Oregon No. 34: 2.39 miles of regrading has marked the intial stage in the improvement of the Rock Creek-Benton County Line Section of this highway to improved standards at a cost of $50,300.

Pendleton-John Day Highway, U. S. No. 395: Progress made during the biennium in the improvement of this highway consisted of 9.18 miles of regrading and 14.52 miles of surfacing and oiling from Long Creek to a point about seven miles south of Fox, of which 5.34 miles of surfacing and oiling was performed by the Public Roads Administration. Also, 7.18 miles of resurfacing and oiling work has been performed between Mountain Rest and Mt. Vernon. Construction work on this highway during the biennium involved an expenditure of approximately $225,000, of which about $86,000 represents the cost of the Public Roads Administration project.

Tualatin Valley Highway, Oregon No. 47: Between Sylvan and West Slope, 1.44 miles of pavement widening has been performed to provide a four-lane pavement and oiled rock footpath to serve the rapidly growing traffic demands placed upon the highway by the suburban development in this vicinity. The cost of this improvement was $111,000.

Wilson River Highway, Oregon No. 6: During the biennium, 13.81 miles of grading has been completed by WPA forces, and the construction of the Devils Lake Fork Bridge, 14.09 miles of rock surfacing and 15.10 miles of bituminous macadam wearing surface construction has been performed under State contract. This work has resulted in the completiton of that portion of the highway between Tillamook and Washburn School to the status of a paved and/or bituminous treated travelway open to year-round traffic, with access at the present easterly terminus being provided by the existing oiled Glenwood-Forest Grove county road. Expenditures for construction work on the Wilson River Highway during the biennium amounted to $519,900.

Salmon River Highway, Oregon No. 18: At Sheridan, 0.57 mile of grade widening and pavement widening has provided a four-lane pavement between curbs with pedestrian walks

on either side to care for increasing local traffic needs and through traffic without congestion. On the Deer Creek-Bellevue Section, 2.12 miles of grading and paving and the construction of a new bridge over Deer Creek has been completed on revised alignment and grade to bring this section to improved standards. Progress made in the improvement of this highway also included the construction of a new concrete bridge over the Rogue river west of Grand Ronde in replacement of a narrow structure. Expenditures made during the biennium for construction work on the Salmon River Highway amounted to $198,400.

Ochoco Highway, U. S. No. 28: During the biennium a start has been made on the proposed relocation of the Ochoco Highway between Prineville and Jones Ranch (about 9.5 miles west of Mitchell) by the grading of 0.80 mile of new highway roadbed on relocated alignment on the Taylor Creek Section at the easterly end of the proposed new route. The cost of this project was $57,300.

Sherman Highway, U. S. No. 97: The biennium has witnessed the completion of the Sherman Highway to the status of an oil-treated macadam throughout its length by the grading and surfacing of 9.95 miles of roadbed on revised alignment and the oiling of 11.09 miles of highway roadbed between Shaniko and the southerly highway terminus. The cost of construction work performed on this highway during the biennium amounted to $225,200.

Wolf Creek Highway, Oregon No. 2: The improvement of the Wolf Creek Highway has been carried forward during the biennium in part by WPA forces and to a considerable extent by contracts let by the State. WPA forces graded 7.88 miles of new roadbed completing the grading of the highway from Sunset Camp to the Davies grade separation structure. The improvements made under State contracts consisted of the construction of a new bridge over the east fork of Dairy creek, the construction of a railroad grade separation structure near Davies, and 7.88 miles of rock surfacing and 11.03 miles of oil mat and bituminous macadam surfacing between Sunset Camp and Davies, which improvements have opened the highway

to year-round traffic service from its westerly terminus at Cannon Beach Junction easterly to a connection with the oiled Nehalem Secondary Highway leading southerly to Forest Grove. Two minor improvements in alignment were also made near Vollmer Creek and the Necanicum Junction, involving 0.95 miles of grading and bituminous macadam surfacing. Expenditures made for construction activities on the Wolf Creek Highway during the biennium amounted to $1,003,000.

John Day-Burns Highway, U. S. No. 395: The work performed on this highway during the biennium consisted of 5.75 miles of regrading and 18.02 miles of surfacing and oiling on the Vance Creek-Soda Mountain Section, involving an expenditure of $132,400.

Lakeview-Burns Highway, U. S. No. 395: The Cinder Butte-Juniper Ridge Section of the highway has been brought to improved standards by 4.85 miles of regrading and 13.14 miles of surfacing and oiling at a cost of $128,200.

Klamath Falls-Malin Highway, Oregon No. 39: Construction activities on this highway during the biennium consisted of the improvement of the Henley Section and the Lost River Section, involving the construction of a new irrigation flume over the highway, the construction of new concrete bridges over a diversion canal and over Lost River, and the grading, surfacing and bituminous macadam surfacing of 1.47 miles of new and improved highway roadbed at the approaches to the new structures. Expenditures on this highway for construction work during the biennium amounted to $76,400.

Heppner Highway, Oregon No. 74: Progress in the improvement of this highway during the biennium involved the surfacing and oiling of 9.20 miles between Jones Hill and Lena at a cost of $45,500.

Warm Springs Highway: Additional progress in the development of this new route has been made during the biennium by the grading of 12.99 miles of new highway roadbed from the National Forest Boundary, about seven miles south of the Wapinitia Junction, to Mill Creek, about 10.5 miles north

A SECTION OF NEW GRADE ON THE WARM SPRINGS HIGHWAY IN WASCO COUNTY

WARM SPRINGS RIVER BRIDGE ON THE WARM SPRINGS HIGHWAY

of the Warm Springs Agency. Two sections of the new route remain ungraded at the present writing; the northerly 7-mile section and a section of 6.7 miles in length from Mill Creek southerly to Vanora Flat. Expenditures made during the biennium for the above-described construction work on this highway amounted to approximately $227,200.

Boardman-Stanfield Highway, U. S. No. 30: The biennium has witnessed the commencement and near completion of the construction of this highway in its entirety, thus contributing an outstanding addition to the highway system. Extending from Boardman easterly a distance of 25.52 miles to a connection with the Old Oregon Trail just south of Stanfield, the new route for east-west through traffic offers a saving in travel distance of 7.3 miles over a fast, wide highway constructed to modern standards. The creation of this new highway involved 25.48 miles of grading, 25.88 miles of bituminous macadam surfacing, several small concrete drainage structures and a reinforced concrete structure some 400 feet in length, to carry the highway over the Umatilla river and the railroad tracks of the Union Pacific Company at a common location. Special significance of the present importance of this new route is borne out by its use for military operations in connection with the recently completed Umatilla Ordnance Depot, the site of which is closely paralleled by the highway for several miles. The construction cost of this highway was approximately $592,000.

Secondary State Highways

During the biennium, improvements were made on the secondary highway system under 53 construction projects which involved the construction of 21 bridge structures, 161 miles of grading, 233 miles of rock or gravel surfacing, 206 miles of oil mat wearing surface, nine miles of bituminous macadam wearing surface, 1.7 miles of bituminous paving and 4.8 miles of Portland cement concrete paving. Expenditures made for construction activities on the secondary highway system during the biennium amounted to approximately $2,566,000.

County Roads

During the period covered by this report, the improvements undertaken by State contracts on county roads and other roads

and streets outside of the primary and secondary highway system, and performed under the federal aid authorizations, consisted of 31 projects, involving the construction of 8 bridge structures, 51 miles of grading, 67 miles of rock or gravel surfacing, 43 miles of oil mat wearing surface, 20 miles of bituminous macadam wearing surface and 13 miles of bituminous and Portland cement concrete pavement. The expenditures involved in making the above-listed improvements amounted to approximately $616,800.

CLASSES OF HIGHWAYS

The classes of highways with which the Highway Commission is normally concerned, and in connection with which it normally expends the state and federal funds which are entrusted to it, are as follows:

1. Primary State Highways.
2. Secondary State Highways.
3. Primary Federal Aid Highways.
4. Secondary Federal Aid Highways.
5. Public Lands Highway.
6. Federal Forest Highways.
7. County Market Roads.
8. County Roads.

During present wartime conditions, the Commission is concerned also with the following road classifications:

1. Access Roads.
2. Strategic Network Highways.
3. Flight Strips.

Classification of highways as above indicated is made necessary by the several plans of highway financing that have been developed during the years by the State and the Federal Government. Each plan of financing limits itself to particular highways or kinds of highways and thus establishes a new classification. It is possible for a highway to be in two or more classes. For instance, a primary state highway may also be a primary federal aid highway. Likewise, a road may be both a county road and a secondary federal aid highway.

Brief descriptions of these several different classes of highways are given in the paragraphs which follow.

Primary and Secondary State Highways. State highways are those highways for which the State has assumed the responsibilities of maintenance and improvement. In the beginning, all state highways were of the same class, but when the point was reached where the system included a complete network of the main arterial highways, it became desirable to have a separate system for highways which serve as feeders to the main network rather than as main lines. The main arterial system was, therefore, designated the Primary State Highway System, and a second system, called the Secondary State Highway System, was set up to receive such additional highways as might not be considered of sufficient importance to justify inclusion in the Primary System.

Additions to the Primary System may be made by the state legislature or by the State Highway Commission. Additions to the Secondary System may be made by joint action of the State Highway Commission and the County Court of the county in which the highway is situated. The conditions under which state moneys may be expended on primary and secondary highways are the same for both classes. Counties bear no financial responsibility for the maintenance or improvement of either class.

The present mileage of Primary Highways is 4,809. The present mileage of Secondary Highways is 2,388. Complete listings of the highways included in the primary and secondary systems are given in Tables 25 and 28 in Section Three of this report. A small scale map showing the highways which comprise the two systems is also included in Section Three.

Listings of expenditures made on the different primary and secondary highways appear in Tables 11 to 16, inclusive, in Section Three.

Primary Federal Aid Highways. The Primary Federal Aid System of highways comprises those highways which have been designated under authority of the Federal Highway Act of 1921 as highways eligible to have regular federal aid funds

expended upon them. The highways in this system are selected and designated by mutual agreement between the Highway Commission and the Federal Public Roads Administration. The total mileage of highways of this class is limited to 8 per cent of the total mileage of public roads in existence in 1921, which places the limit for the state of Oregon at 3,346.1 miles, exclusive of miles within national forests and other federal reservations. The total mileage in the system at present is 3,287.8 miles, plus 522.7 miles which are within national forests and reservations.

Regular federal aid funds allotted to the State of Oregon for use on primary federal aid highways for the fiscal years 1939 to 1943 were as follows:

Fiscal year 1939	$2,048,413
Fiscal year 1940	1,638,823
Fiscal year 1941	1,884,937
Fiscal year 1942	1,647,906
Fiscal year 1943	1,649,132

A complete listing of the Primary Federal Aid Highways in Oregon is given in Table XIII in Section II of this report.

Secondary Federal Aid Highways. The Secondary Federal Aid System of highways includes those highways which have been designated under authority of federal acts and regulations as highways eligible to have federal aid secondary highway funds expended upon them. The highways in this system are selected and designated by the Highway Commission subject to limitations and regulations set up by the Federal Public Roads Administration. County roads, as well as state highways, are eligible for consideration.

The total mileage in the secondary federal aid system is limited to 10 per cent of the total mileage of public roads in the state. Thus, in Oregon the limiting mileage is 4,933. The mileage in the system as of the present time is 1,169, of which 176 miles are primary state highways, 613 miles are secondary state highways, and 380 miles are county roads.

Federal aid funds allotted to the State of Oregon for use on secondary federal aid highways for the fiscal years 1939 to 1943 were as follows:

Fiscal year 1939	$409,683
Fiscal year 1940	245,823
Fiscal year 1941	245,861
Fiscal year 1942	288,383
Fiscal year 1943	288,598

Public Lands Highways. Public lands highways are highways or parts of highways which, because of their being on unappropriated and unreserved public lands, Indian reservations or other federal reservations, are eligible to have Public Lands Highway Funds expended upon them. No definite system has been designated for this class of highways, but to date use of the Public Lands Highway Funds has been confined in large part to the Warm Springs Highway across the Warm Springs Indian Reservation and the I. O. N. Highway in Malheur county.

Federal authorizations of Public Lands Highway Funds for the fiscal years 1939 to 1943, and the amounts of each that have been released for use to date, are as follows:

	Authorized	*Released*
Fiscal year 1939	$167,394	$167,394
Fiscal year 1940	60,542	60,542
Fiscal year 1941	129,201	64,601
Fiscal year 1942	96,839	64,559
Fiscal year 1943	96,000	None

Federal Forest Highways. The Federal Forest Highway System comprises such main highways within or across national forests as have been designated by the Federal Forest Service, the Public Roads Administration and the State Highway Commission for improvement with federal forest highway funds. A list of the highways included in this system is given in Table XIV.

Construction work financed with Forest Highway Funds is contracted and supervised by the Public Roads Administration. However, the Highway Commission has a voice in the selection

of the projects to be undertaken, and in matters of location and standards of construction.

Because of the war effort, expenditures of forest highway funds for the years 1941, 1942 and 1943 have been very small. For a time prior to 1941, the expenditures ran about $1,200,000 per year.

Access Roads. An access road is any road or street giving access to a military establishment, a war industry, or a mine essential to the war effort. Expenditures of federal access road funds are limited to roads of this class. The classification is probably a temporary one as it is unlikely that federal funds for access roads will be available beyond termination of the war.

Work financed with access road funds is performed under supervision of the Highway Commission. Allocations of access road funds are made only as the need for access road improvement develops. The funds are not allotted to the states in accordance with a formula, as are most other federal funds. Access road projects undertaken in Oregon to date amount to $2,790,000.

MAINTENANCE HEADQUARTERS ON THE WILLAMETTE HIGHWAY AT ODELL LAKE

Strategic Network Highways. Strategic network highways are arterial highways comprising a network suitable to meet military requirements. Highways for inclusion in this network are selected by the U. S. War Department. The Highway Commission and the Federal Public Roads Administration have no voice in the selection other than in an advisory capacity.

The tentatively adopted strategic network for Oregon includes approximately 60 per cent of the highways in the primary state highway system, the total mileage of network highways being 2,800. Practically all of the strategic network highways are a part, also, of the primary federal aid system.

From the one allocation of strategic network funds thus far made by the Congress, Oregon has been allotted $412,283. However, due to war conditions, and to the fact that all of Oregon's strategic network highways are considered sufficiently improved to meet immediate military needs, no part of this allotment has yet been used.

Flight Strips. Flight strips are temporary landing fields for airplanes. They are described here for the reason that their construction is entrusted to State Highway Departments, the same as is the construction of most classes of federal roads. They are associated with roads, also, for the reason that the common practice is to build them alongside of highways.

Federal funds for flight-strip construction are allotted without regard to state boundaries. In Oregon, construction has been started on three, and construction of a fourth has been authorized. The total expenditure will be in excess of $1,000,000.

County Roads. County roads are roads over which control and responsibility are exercised by the County Courts of the several counties. Of the 54,000 miles of public roads and streets in the state, more than 30,000 miles are county roads. Prior to 1917, nearly all public roads were county roads. Since then, the State has relieved the counties of a considerable part of the road burden by taking over, as state highways, many county roads of intercounty character. Also, the Federal Government

has assumed responsibility for a considerable mileage of roads and trails in national forests, national parks and Indian reservations.

For many years funds expended for improvement and maintenance of county roads were raised principally by direct property taxes. Prior to the advent of the automobile, little had been done in the way of permanent construction, and the roads in general were merely two muddy or dusty tracks between fence lines. Often the limited funds available were not expended to the best advantage, and such improvements as were made were largely improvements for local benefit only. With the advent of the automobile and the creation of a state highway system, and with the assistance of funds raised by the Market Road Act, many changes occurred in the construction and maintenance methods employed by the county authorities. The demand for improved roads was very great, and all county authorities in the state made effort to improve the road mileage under their jurisdiction. Many miles of county roads are of a very low standard and will necessarily remain so, because of the limited service which they are required to render.

In 1935, the Federal Congress passed an act providing federal relief funds for highway construction and further provided that a portion of these funds be used for the improvement of county roads. The federal act of 1935, the federal secondary and feeder road provisions of the 1936 act, and subsequent laws and regulations have made available considerable sums for the improvement of county roads. The construction of these roads has been under the supervision of the State Highway Commission and the Federal Government. The surveys and construction engineering have been performed by the State Highway Department without cost to the county, and the Highway Commission has not required the counties to co-operate in the construction costs. Under the policy adopted by the Commission, and by agreement with the counties, the counties have provided the necessary rights of way and have assumed responsibility for the maintenance of the projects after construction. The maintenance agreement provides that the county

shall make available sufficient funds each year to maintain the project in a manner satisfactory to the State Highway Engineer and the Public Roads Administration. On a number of projects throughout the state, the counties have voluntarily contributed toward the cost of the construction, either in cash or by performing the grading and surfacing work required. This has made it possible to complete a greater mileage of good surfaced roads than would have been the case if the counties had not co-operated. In general, the federal funds have been utilized in work of high standard, and, in order to meet public demand, projects have been selected where the conditions would permit the placing of oil mat wearing surfaces. It has been the policy to select projects for improvement on the basis of service to the greatest number of people, rather than attempting to improve sections of road merely because of local pressure. This program of road improvement has been of considerable benefit to the counties. The funds, however, are limited and it cannot be expected that a very large mileage can be improved under this program.

The present Federal Secondary Highway and Feeder Road Act provides that the federal secondary system shall be 10 per cent of the total road mileage of the state, as indicated by the State-wide traffic survey and road inventory which was made in 1936 and 1937 by the State Highway Department and Federal Government. This limits the total number of miles available for this system to 4,933.5 of which possibly 50 per cent will be on the county road system.

During the period from 1920 to 1930, inclusive, the counties, through bond issues and tax levies, raised substantial sums for road improvement, and in many counties some type of improvement was made on every mile of road in the county. During the depression years road funds declined, due to reduction in taxes, and many counties find themselves facing the future with a road problem of considerable magnitude. This is being further aggravated by the war conditions and restrictions placed upon the acquisition of road machinery and materials for the maintenance of county roads. During the past 10 or 15 years the majority of the counties of the state

have made every possible effort to retire the bond issues which were voted in previous years, and at the conclusion of the war when the demand for reconstruction and better maintenance of roads must be met the counties should for this reason find themselves in a better position to carry on their road programs.

Reports submitted by the counties indicate that there has been expended on county roads by the counties during the calendar years 1940 and 1941 the sum of $10,455,442.19.

County Market Roads. By act of the state legislature in 1917, a system of state highways was created and a method of raising funds for their improvement established. The system established by the act was necessarily limited to a small mileage of the roads in the state, and agitation for State aid for the improvement of county roads developed rapidly. The legislative session of 1919 passed a law known as the Market Road Act, which was referred to the people and adopted. This act provided for the establishment of a farm-to-market road system and provided for assistance in financing of the system by the levying of a one-mill state tax on all the property of the state. This state levy was apportioned to the counties by order of the State Highway Commission on the basis of each county's assessed valuation and each county's tax ratio as established by the State Tax Commission, and the act required each county to levy an equal amount on the property in each county. It further provided that no apportionment to any county should exceed 10 per cent of the total amount of the one-mill state tax levied in the entire state for any year.

The several counties of the state designated the roads which they believed were eligible for improvement under the Market Road Act, and the State Highway Commission was required by law to approve the roads selected by the counties, if in the judgment of the Commission the roads selected by the county seemed to meet the requirements. The construction and maintenance of the market road system was performed by county forces, pursuant to surveys, plans, and estimates prepared by county engineers or by engineers of the State Highway Department, when the plans were approved by the State Highway Department. In a few of the counties some of the market

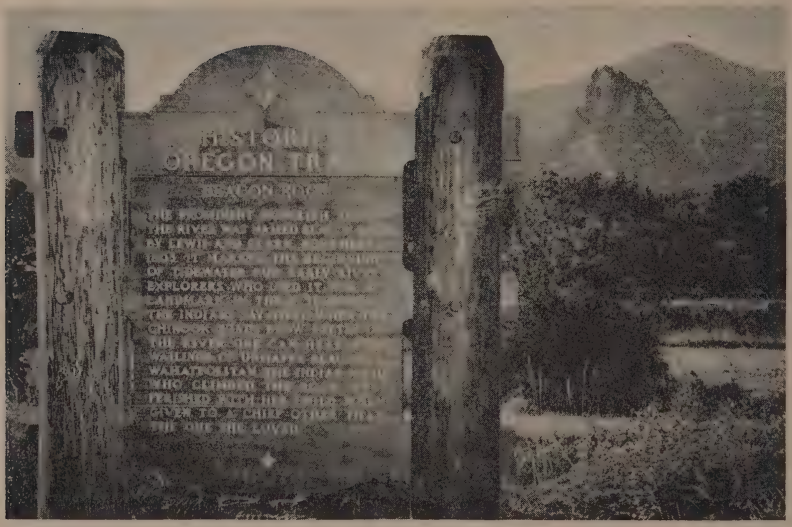
road construction was performed by contract, and in nearly all counties the bridge construction was performed by contract except in the case of small structures.

The one-mill state market road levy was repealed by the 1931 legislature, and the responsibility for the market road system was placed in the hands of the county courts by repealing the requirement that the supervision and control of the work be under the direction of the State Highway Commission. Market road funds may still be provided by the county court of any county by uniform levy on all the taxable property of the county, as this part of the Act remains in effect. Another provision of the Act still in effect is the section pertaining to bridges, requiring plans and specifications for all bridges and culverts to be furnished without cost to the county by the Highway Commission and constructed in accordance therewith. An annual inspection of all bridges on the market road system is also required. As a service to the counties the State Highway Commission, through its engineering staff, also continues to furnish engineering advice when such advice is requested by the county courts and engineers.

Practically all the counties in the state have retained their market road systems, and while some do not make a market road levy the market roads as such are still recognized. On December 31, 1931, there were approximately 6,300 miles of roads on the market road system. Approximately 2,000 miles of these roads became secondary state highways, and the county market road system now consists of approximately 4,300 miles. From the year 1919, through and including the year 1931, there was expended for construction and maintenance on the market road system a total of $33,279,172.23, of which amount there had been provided by the State one-mill levy $12,722,069.80.

Many of the counties continued to levy a market road fund, and reports received from these counties indicate they have expended $642,106.26 for the year 1940 and $704,394.81 for the year 1941, for construction and maintenance of these roads.

IMPROVEMENT ON HOOD RIVER SECONDARY HIGHWAY
BETWEEN DEE AND WOODWORTH ACRES



HISTORIC OREGON TRAIL MARKER AT BEACON ROCK NEAR BONNEVILLE

FINANCIAL REPORT

By Office Engineering Department

S. H. PROBERT, *Office Engineer*

Sources of State Highway Income

State funds now being utilized in the construction, maintenance and operation of state highways are derived from road-user taxes and fees as follows:

1. Gasoline tax.
2. Motor vehicle license fees and operators fees.
3. Motor transportation fees.
4. Fines for traffic law violations.

Of the revenues yielded by these taxes and fees, 15.7 per cent is allotted to the counties for use on county roads. From these revenues, also, an additional amount approximating 2.0 per cent is appropriated by the state legislature for use by the State Police Department. The remaining 82.3 per cent is placed at the disposal of the State Highway Commission for use on state highways.

The State funds above referred to are supplemented each year by co-operative funds from the Federal Government and, to a very limited extent, by co-operative funds from counties and other agencies.

The following tabulation gives an idea of the amounts that have been received from state and federal sources during the past few years for use on state highways, and indicates the trends in those amounts during the period immediately preceding the entrance of the United States into World War II.

Calendar Year	State Funds	Federal Funds	State Plus Federal Funds
1935	$ 9,056,106	$ 4,165,503	$13,221,609
1936	10,243,742	6,375,343	16,619,085
1937	10,921,069	4,589,895	15,510,964
1938	10,668,916	2,873,802	13,542,718
1939	11,771,365	2,652,475	14,423,840
1940	12,759,332	2,926,250	15,685,582
1941	15,093,637	2,810,895	17,904,532

TABLE IX

Incomes for Calendar Years 1941 and 1942

Source of Income	1941 (Actual)	1942 (Estimated)
State Funds:		
Motor vehicle license fees (net)	$ 3,629,074	$ 3,200,000
Gasoline tax (net)	12,867,932	11,880,000
Motor transportation fees (net)	1,297,786	1,517,000
Fines for traffic law violations	41,145	40,000
Cash discounts	9,759	10,000
Totals	$17,845,696	$16,647,000
Less contributions to state police	341,098	345,000
Less contributions to counties	2,410,961	2,815,000
Total receipts of state funds for highway purposes	$15,093,637	$13,487,000
Cooperative Funds:		
1940 and prior federal funds	$ 1,214,152	$ 250,000
1941 federal funds	1,326,500	709,000
1942 federal aid funds	172,060	1,076,000
1942 federal lands highway funds	61,271	36,000
1942 federal secondary funds	36,912	201,000
1942 federal grade separation funds	.....	129,000
1943 federal aid funds	.....	100,000
1943 federal grade separation funds	.....	79,000
Federal access road funds	.....	400,000
County cooperative funds	62,041	9,000
Miscellaneous cooperative funds	7,250	14,000
Total receipts of cooperative funds	$ 2,880,186	$ 3,003,000
Total, all receipts	$17,973,823	$16,490,000
Balance on hand, beginning of year (exclusive of revolving fund)	1,673,897	1,893,000
Total amount available for disbursement	$19,647,720	$18,383,000

With the entrance of the United States into the war, and more particularly with the early seizure, by Japan, of the East Indies and other rubber producing areas in the South Pacific, the trend of income changed. It is now evident that the State fund income for 1942 will not exceed about $13,500,000, and it appears probable that in 1943 the state fund income will drop to something less than $9,000,000.

Incomes and Disbursements, 1941 and 1942

A fully detailed statement of the actual income for the calendar year 1941 and of the probable income for the calendar year 1942 is given in the accompanying Table IX.

The $15,093,637 shown in Table IX as the total receipts of state funds for state highway purposes, year 1941, represents the peak of state highway income. The highest previous single-

TABLE X

Expenditures for Calendar Years 1941 and 1942

Class of Expenditure	1941 (Actual)	1942 (Estimated)
Capital Outlays:		
1940 and prior federal projects	$ 950,269	$ 367,000
1941 federal projects	2,591,296	571,000
1942 federal aid projects	1,301,146	656,000
1942 federal lands highway projects	146,014	.....
1942 federal secondary projects	269,457	117,000
1942 federal grade separation projects	2,337	226,000
1943 federal aid projects	.....	1,392,000
1943 federal grade separation projects	.....	80,000
Federal access road projects	.....	1,466,000
Federal flight strip projects	.....	56,000
WPA highway projects	409,053	140,000
State construction projects (primary)	1,229,143	806,000
State construction projects (secondary)	723,376	414,000
Cooperation in forest road work	285,500	.....
Minor betterments (primary)	254,144	100,000
Minor betterments (secondary)	126,167	35,000
Surveys (primary)	222,733	175,000
Surveys (secondary)	42,025	10,000
Surveys (county roads)	39,058	20,000
Engineering county construction	3,527	1,000
Property acquisition, general expense	35,771	38,000
Purchase of rights of way, quarries, etc.	1,140,986	745,000
Purchase of parks	104,419	19,000
Improvement of parks	25,365	15,000
Improvement of maintenance stations	67,357	40,000
Improvement of other properties	142,979	30,000
Equipment purchases, sales and depreciation	184,241	Cr. 30,000
Sub-totals, capital outlays	$10,296,363	$ 7,489,000
Maintenance:		
Special maintenance (primary)	$ 375,718	$ 450,000
Special maintenance (secondary)	54,398	35,000
General maintenance (primary)	2,740,332	2,850,000
General maintenance (secondary)	760,361	925,000
Maintenance of county roads, signs, etc.	10,236	75,000
Maintenance of city streets	6,179	140,000
District maintenance superintendence	106,301	130,000
Sub-totals, maintenance	$ 4,053,525	$ 4,605,000
Miscellaneous:		
Administration and general supervision	$ 468,524	$ 460,000
Planning and traffic surveys	89,747	75,000
Travel and information bureau	101,253	36,000
Operation of parks	48,258	40,000
Operation of maintenance stations	36,566	36,000
Operation of drawbridges and ferries	50,726	60,000
Miscellaneous	100,842	273,000
Service and clearing accounts	Cr. 229,903	Cr. 150,000
Bond interest and maturities	2,739,085	2,620,000
Sub-totals, miscellaneous	$ 3,405,098	$ 3,450,000
Totals, all purposes	$17,754,986	$15,544,000

year incomes occurred in 1940 when the total was $12,759,332, and in 1930 when the total was $12,279,444.

The abnormal increase of $2,334,305 in the State fund income of 1941 over the State fund income of 1940 was occasioned, in large part at least, by the increased industrial activity, and the prosperity accompanying it, which resulted from Great Britain's war activities in Europe and from the expansion of military and naval forces and facilities in the United States in contemplation of the likelihood of its being drawn into the war.

An estimated decrease of approximately $1,600,000 in the State fund income of 1942, as compared with the State fund income of 1941, is the beginning of further and much greater decreases in annual income, which are to result from the tire shortage, gasoline rationing and other contributing conditions growing out of United States' participation in the war.

A statement listing the disbursements made during the calendar years 1941 and 1942 appears in Table X. For some purposes, however, the following summarization of that table will be found more convenient:

Item	1941 (Actual)	1942 (Estimated)
Bond interest and principal	$ 2,739,085	$ 2,620,000
Maintenance of highways	4,053,525	4,605,000
Construction, rights of way and other capital expense	10,296,363	7,489,000
Operation and miscellaneous	666,013	830,000
	$17,754,986	$15,544,000

The reduction in construction expenditure from $10,296,363 in 1941 to $7,489,000 in 1942 represents the beginning effect of a retrenchment policy in highway construction, the purposes of which are (1) to conserve manpower, equipment and materials needed in the war effort, and (2) to husband a rapidly decreasing income so that the time may not come when funds for the adequate maintenance of the highways will not be possible. Under the retrenchment policy here referred to, only construction projects which are found by the military authorities and the War Production Board to be definitely essential to the war effort are to be undertaken. For practical purposes that means that the only classes of projects to be undertaken are (1) necessary improvements on roads and streets giving access to military establishments, war industries and mines, and (2) construction of flight strips needed in connection with the war effort.

TABLE XI

Anticipated Incomes for Calendar Years 1943 and 1944

Source of Income	1943	1944
State Funds:		
Motor vehicle license fees (net)	$ 2,900,000	$ 2,400,000
Gasoline tax (net)	7,350,000	4,630,000
Motor transportation fees	1,500,000	1,370,000
Fines for traffic law violations	30,000	20,000
Cash discounts	10,000	10,000
Totals	$11,790,000	$ 8,430,000
Less contributions to state police	371,000	386,000
Less contributions to counties	2,612,000	2,000,000
Total estimated receipts of state funds for highway purposes	$ 8,807,000	$ 6,044,000
Cooperative Funds:		
1940 and prior federal funds	$ 170,000	$ .....
1941 federal funds	400,000	.....
1942 federal aid funds	350,000	50,000
1942 federal secondary funds	50,000	.....
1942 federal grade separation funds	100,000	.....
1943 federal aid funds	1,250,000	150,000
1943 federal grade separation funds	150,000	.....
Federal access road funds	2,090,000	300,000
Federal flight strip funds	800,000	200,000
Federal advance engineering funds	65,000	100,000
Total estimated receipts of cooperative funds	$ 5,425,000	$ 800,000
Total, all estimated receipts	$14,232,000	$ 6,844,000
Estimated balance on hand, beginning of year	2,839,000	3,526,000
Total amount available for disbursement	$17,071,000	$10,370,000

The effect of the retrenchment policy on construction work performed during 1942 would have been much greater than it was had it not been for the fact that work totaling $4,400,000 was under contract and started before war was declared, and to the further fact that access road and flight strip projects undertaken during the year on order of the Federal Government totaled more than $3,600,000.

Anticipated Incomes for 1943 and 1944

Detailed estimates of the expected incomes for the calendar years 1943 and 1944 are given in the accompanying Table XI.

While the full effect of the rubber shortage and gasoline rationing on highway income will not be felt until 1944, when it is expected that the excess of tire failures over tire replacements will reach a peak, the effect of these two factors on the

highway income will be very serious even in 1943. Accurate determination of what the effect may be is impossible, but careful study, taking into consideration the probable mileage life in existing tires, the rate at which that life will be used up, the probable percentages of permitted tire replacements and tire recapping, and many other factors and indications, leads to the conclusion that the gross income from motor vehicles in 1942, 1943, and 1944 will, when compared with the income of 1941, be about as follows:

1942—93% of 1941 income or $16,647,000
1943—66% of 1941 income or $11,790,000
1944—47% of 1941 income or $ 8,430,000

The portions of these gross amounts which will remain for use on state highways after deductions are made for contributions to the counties and the State Police are: $13,487,000 for 1942, $8,807,000 for 1943, and $6,044,000 for 1944.

Collections of federal aid will be unusually high in 1943 due to the large amount of federal aid work carried on in 1942, for which federal reimbursement will not be received until 1943. The amount of federal aid work to be performed during 1943, in completing projects started during the previous year, is also somewhat above the normal of recent years. In 1944, conditions will be reversed and federal aid collections will be small, unless some situation calling for unexpected federal aid construction develops.

Expenditure Budgets for 1943 and 1944

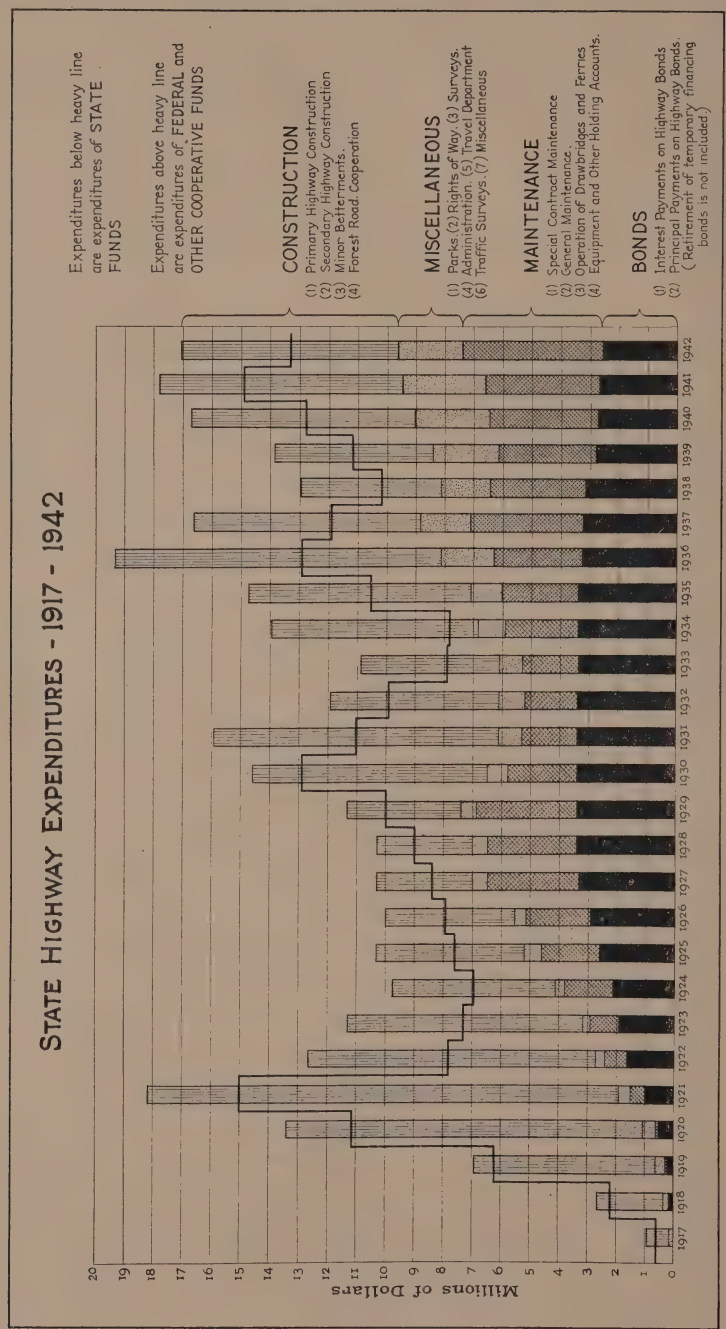
Expenditure budgets for the calendar years 1943 and 1944, as shown in Table XII, reflect very strongly the retrenchment policy made necessary by war conditions and the attendant reduction in highway income. The budget total for 1943 is $4,209,986 below the total for 1941, notwithstanding the fact that some $3,300,000 of the budgeted expenditure for 1943 is for access road improvement, flight strips, and other work incidental to the war effort, that is, in large part, outside of the regular highway program. For 1944, the total of the budget is set at $8,333,000, considerably less than one-half of the actual expenditure of $17,754,986 made during 1941.

TABLE XII

Expenditure Budgets for Calendar Years 1943 and 1944

Class of Expenditure	1943	1944
Capital Outlays:		
1940 and prior federal projects	$ 80,000	$ .....
1941 federal projects	180,000	.....
1942 federal aid projects	160,000	.....
1942 federal secondary projects	80,000	.....
1942 federal grade separation projects	120,000	.....
1943 federal aid projects	500,000	.....
1943 federal grade separation projects	150,000	.....
Federal access road projects	1,650,000	.....
Federal flight strip projects	1,020,000	.....
State construction projects (primary)	145,000	25,000
State construction projects (secondary)	75,000	25,000
Minor betterments (primary)	75,000	50,000
Minor betterments (secondary)	15,000	15,000
Surveys (primary)	200,000	100,000
Surveys (secondary)	20,000	20,000
Property acquisition, field expense	30,000	20,000
Purchase of rights of way, quarries, etc.	500,000	115,000
Equipment, sales and depreciation	Cr. 200,000	Cr. 200,000
Contingency reserve, construction	150,000	20,000
Sub-totals, capital outlays	$ 4,950,000	$ 190,000
Maintenance:		
Special maintenance (primary)	$ 500,000	$ 500,000
Special maintenance (secondary)	50,000	50,000
General maintenance (primary)	3,100,000	3,200,000
General maintenance (secondary)	900,000	900,000
Maintenance of county roads, signs, etc.	30,000	20,000
Maintenance of city streets	250,000	250,000
District maintenance superintendence	130,000	130,000
Contingency reserve, maintenance	100,000	100,000
Sub-totals, maintenance	$ 5,060,000	$ 5,150,000
Miscellaneous:		
Administration and general supervision	$ 450,000	$ 400,000
Planning and traffic surveys	75,000	50,000
Operation of parks	35,000	30,000
Operation of maintenance stations	40,000	40,000
Operation of drawbridges and ferries	60,000	60,000
Miscellaneous	403,000	187,000
Bond interest and maturities	2,472,000	2,226,000
Totals, miscellaneous	$ 3,535,000	$ 2,993,000
Totals, all purposes	$13,545,000	$ 8,333,000

In the 1944 budget, only $190,000 is budgeted for construction and other capital expense. There is possibility that this amount may be increased by projects essential to the war effort which are not anticipated at this time; but, even so, it is highly probable that construction expenditures will, in 1944, fall below the lowest annual total experienced since 1917, when the construction of Oregon's state highway system was first under-


STATE HIGHWAY EXPENDITURES - 1917 - 1942
Expenditures below heavy line are expenditures of STATE FUNDS
Expenditures above heavy line are expenditures of FEDERAL and OTHER COOPERATIVE FUNDS
CONSTRUCTION
(1) Primary Highway Construction
(2) Secondary Highway Construction
(3) Minor Betterments.
(4) Forest Road Cooperation
MISCELLANEOUS
(1) Parks. (2) Rights of Way. (3) Surveys.
(4) Administration. (5) Travel Department
(6) Traffic Surveys. (7) Miscellaneous
MAINTENANCE
(1) Special Contract Maintenance
(2) General Maintenance.
(3) Operation of Drawbridges and Ferries
(4) Equipment and Other Holding Accounts.
BONDS
(1) Interest Payments on Highway Bonds
(2) Principal Payments on Highway Bonds. (Retirement of temporary financing bonds is not included.)
Millions of Dollars
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942

taken. A briefly summarized statement of the capital outlay expenditures budgeted for 1943 and 1944 follows:

	1943	1944
Highway construction (including renewals and betterments)	$ 4,250,000	$ 115,000
Surveys	220,000	120,000
Rights of way, quarries, etc.	530,000	135,000
Equipment	Cr. 50,000	Cr. 180,000
	$ 4,950,000	$ 190,000

Of the $8,330,000 total amount budgeted for 1944, $2,226,000 (27%) is required to meet interest and principal on the bond debt.

The amounts budgeted for highway maintenance show some increase over previous years, despite the trimming of that work to as great an extent as preservation of the original investment will permit. Among the factors which are operating to increase the maintenance cost are (1) increasing wages of labor, (2) increasing costs of materials, and (3) decreasing efficiency of labor forces. The cost of maintaining the highways has been increased greatly, also, by increased log hauling operations.

The amounts budgeted for expenditure during the years 1943 and 1944 are slightly greater than the net income during the same period. However, savings effected during 1942 by prompt action in the curtailing of the construction program are more than sufficient to offset this difference, and it is hoped that at the end of 1944 an unexpended balance of from $1,000,000 to $2,000,000 will remain available to enable the State to cooperate promptly with the Federal Government in a post-war construction program to provide employment for returning soldiers and to accomplish highway restoration and highway improvement that will be so much needed at that time.

Federal Participation in Financing of State Highway Work

Much of the work being performed under the direct control and supervision of the State Highway Commission is financed in part or in whole with funds provided by the Federal Government. Federal funds thus utilized are of several classes, each class being subject to such special use and to such special limitation and control as may be specified for it by the Congress.

The several classes that have been active during the past biennium are as follows:

1. Regular Federal Aid Funds.
2. Federal Secondary Highway Funds.
3. Federal Grade Crossing Funds.
4. Public Lands Highway Funds.
5. Access Road Funds.
6. Strategic Highway Network Funds.
7. Flight Strip Funds.
8. Advance Engineering Funds.

The first four of these classes of funds have been made available year after year for many years, with comparatively slight changes in annual amounts and with few changes in basis of application. Their purpose is to assist the states in the development of road systems required to meet peacetime requirements. The last four classes were set up in 1941, and their purpose is to make possible, and to expedite, road and street improvements particularly essential to defense activities and the war effort.

Work under the wartime group of funds consists primarily of improvements giving access to military establishments, war industries, and mines, to emergency airplane landing fields (called flight strips), and to such improvements on the main highways comprising the "strategic network" as are of particular necessity from the military standpoint.

It became evident, as soon as preparations for war were undertaken in the United States, that there would of necessity be a curtailment in construction work not essential to the war effort, and it was early recognized that much, if not all, of the highway work being done with funds of the peacetime group above mentioned, was of non-essential classification. Contracting of work to be financed with funds of that group was, therefore, discontinued, and after about November of 1941 work of that class was undertaken only on such few projects as were found to be of necessity for military purposes. However, work already under contract and started was permitted

to continue to completion. It is this fact that accounts for the expenditure of something in excess of $3,000,000, during 1942, on projects financed with funds of the peacetime group. Expenditures, during 1942, on projects financed with funds in the wartime group amount to approximately $1,500,000.

Regular federal aid funds and secondary highway funds are apportioned among the states—one-third in proportion to population, one-third in proportion to area, and one-third in proportion to mileage of rural delivery and star mail routes. Grade separation funds are apportioned among the states—one-half in proportion to population, one-fourth in proportion to mileage in the federal aid highway system, and one-fourth in proportion to mileages of railroads. Federal lands highway funds are apportioned only to states in which more than five per cent of the total area is "unappropriated or unreserved public lands, non-taxable Indian lands, or other Federal reservations other than forest reservations." The apportionment among those states is in proportion to the area of federal lands of the classes above mentioned.

Advance engineering funds and one-half of the strategic network funds are apportioned among the states in accordance with the same formula as applies to regular federal aid funds and secondary highway funds. The other one-half of the strategic network funds, the access road funds and the flight strip funds are not apportioned among the states on any specified basis. They are assigned to projects on a discretionary basis, according to need, and without regard to state boundaries.

Federal funds for highway work are not turned over to the states in advance of construction. Instead, they are paid to the states in the form of reimbursement during and after the period that the work is in progress. They are paid only on projects for which the plans have been previously approved by the Public Roads Administration and for which the work is conducted in accordance with the applicable requirements established by the Public Roads Administration. The percentages of total cost to which the federal participation is limited are as follows:

Class of Funds	Limit of Federal Co-operation: Basic	Limit of Federal Co-operation: For Oregon
Regular federal aid funds	50%	*62.05%
Federal secondary highway funds	50%	*62.05%
Federal grade crossing funds	100%	100.00%
Federal lands highway funds	100%	100.00%
Access road funds	100%	100.00%
Strategic network funds	75%	81.02%
Flight strip funds	100%	100.00%
Advance engineering funds	50%	62.05%

* This percentage may be increased to 81.02% on projects which are on the strategic highway network.

Oregon's variations from the basic limits above indicated come about through a provision which grants higher percentages of co-operation to those states in which unappropriated public lands comprise more than five per cent of the total area.

Federal aid apportioned to a state must be placed under contract within one year after the close of the fiscal year for which the apportionment is made. Amounts not so contracted revert to the federal government to be redistributed among all of the states. Under this arrangement, the State has about three years in which to use the apportionment for a given year. For instance, the apportionment for the fiscal year 1942 may be used any time during the calendar years 1941, 1942, and 1943.

In the table which follows are shown the amounts of federal funds allotted to Oregon for the federal fiscal years 1941, 1942, and 1943:

Class of Funds	Oregon's Allotment
Fiscal Year 1941	
Regular federal aid funds	$1,884,937
Secondary highway funds	245,861
Grade crossing funds	335,220
Public lands highway funds	129,201*
Sub-total, 1941 funds	$2,595,219
Fiscal Year 1942	
Regular federal aid funds	$1,647,906
Secondary highway funds	288,383
Grade crossing funds	228,715
Public lands highway funds	96,839*
Sub-total, 1942 funds	$2,261,843
Fiscal Year 1943	
Regular federal aid funds	$1,649,132
Secondary highway funds	288,598
Grade crossing funds	228,533
Public lands highway funds (approx.)	96,000*
Strategic network funds	412,283
Advance engineering funds	164,913
Sub-total, 1943 funds	$2,839,459

* Amounts of public lands highwey funds actually released for contracting are: For 1941, $64,601; for 1942, $64,559; for 1943, none.

In addition to the specific fund allotments above listed, Oregon has been granted approvals for access road projects requiring approximately $2,800,000 of federal funds and for flight strip projects requiring approximately $1,000,000 of federal funds.

The classes of projects to which the use of the several kinds of federal funds are limited are as described in the paragraphs which follow.

Regular Federal Aid Funds: Regular federal aid funds can be applied only on permanent improvement projects on highways included in the Federal Aid Highway System. A map of the system accompanies this article, and in the accompanying Table XIII there are given the numbers, names, and lengths of the highways which comprise the system. The total mileage of federal aid highways is 3,944.53 miles, which is approximately 80 per cent of the total mileage in the Primary State Highway System.

Federal participation in the cost of regular federal aid projects is, at present, limited to 81.02 per cent for projects on the strategic network, and to 62.05 per cent for projects not on that network.

Federal Secondary Highway Funds: Federal secondary highway funds are available for use only on state highways and county roads included in the federal secondary highway system. Only 10 per cent of the total mileage of public roads in the state can be included in this federal secondary system.

The limitations on federal participation in the cost of federal secondary highway projects are the same as above stated for regular federal aid projects.

Grade Separation Funds: Federal grade separation funds are available for grade separations, grade crossing elimination and grade crossing protection work on all classes of highways, public roads and streets, there being no limitation to any particular system or systems of roads or streets. The funds must be so utilized, however, that each main line railroad in the state benefits in approximate proportion to the mileage of railroad operated.

Federal participation in the cost of grade crossing projects may be as high as 100 per cent.

Federal Lands Highway Funds: Federal lands highway funds can be used only for work on unappropriated or unreserved public lands, non-taxable Indian lands, or other federal reservations other than forest reservations. The locations in Oregon at which these funds can be used advantageously are in the public land areas in the far southeastern portion of the state, in the Warm Springs Indian Reservation, and the Klamath

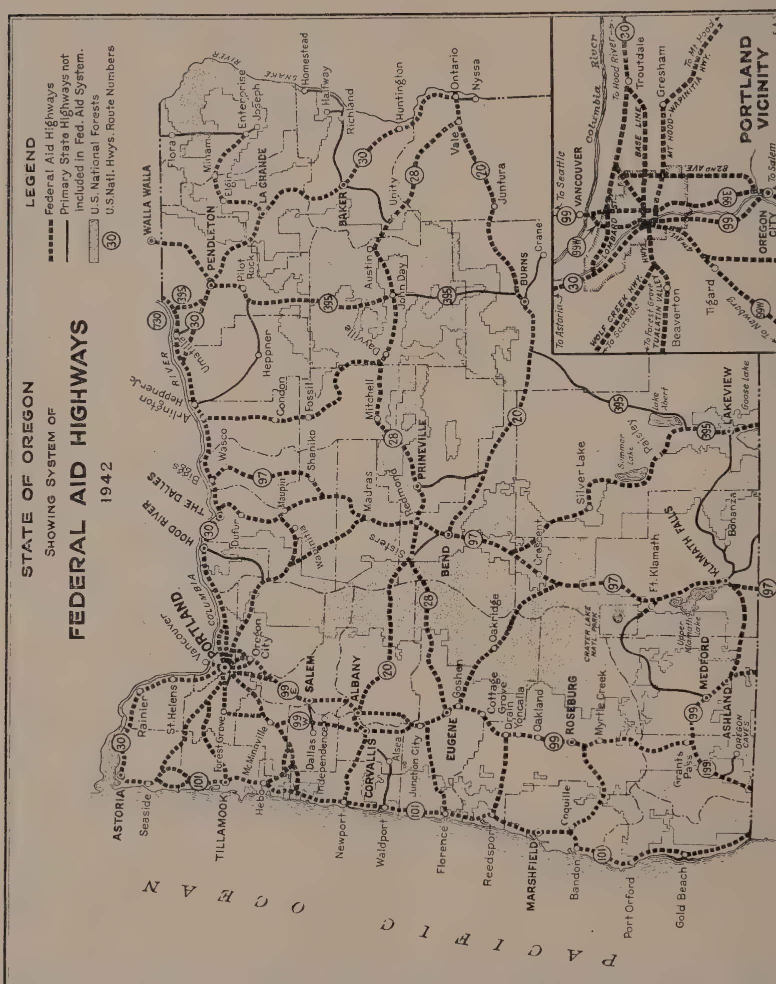


TABLE XIII

Mileages of Federal Aid Highways

Federal Route No.	Highway	Total Federal Aid Mileage Inclusive of Miles Within Cities and Reservations	Mileage Within Cities of 2,500 or More	Mileage Within National Forests	Mileage Within Indian Reservations	Total Federal Aid Mileage Exclusive of Miles Within Cities and Reservations
1	Astoria to Ontario	511.33	31.89	29.55	*24.44	425.45
2	Oregon Coast Highway	394.02	10.24	46.38	† 0.29	337.11
3	Pacific Highway	337.85	23.12	7.53	.....	307.20
4	The Dalles-California Highway	283.11	4.73	24.70	43.18	210.50
5	Eugene to Ontario	385.00	.....	86.01	.....	298.99
6	Arlington to Rock Creek	123.63	.....	.....	.....	123.63
7	La Grande to Enterprise	66.25	0.46	.....	.....	65.79
8	Heppner Junction to Pendleton‡	.....	.....	.....	.....	.....
9	Pacific Highway West	116.04	13.34	.....	.....	102.70
10	Albany-Corvallis Highway	10.50	0.65	.....	.....	9.85
11	McMinnville-Tillamook Highway	48.68	.....	13.44	.....	35.24
12	Sherman Highway	69.00	.....	.....	.....	69.00
13	Ft. Klamath to Crater Lake	6.75	.....	0.99	0.98	4.78
14	Coos Bay-Roseburg Highway	61.81	0.29	.....	.....	61.52
15	Green Springs Highway	56.34	0.98	1.57	.....	53.79
16	Fremont Highway	158.23	.....	14.25	.....	143.98
17	Redwood Highway	42.34	.....	0.93	.....	41.41
18	Boardman to Wallula	39.49	.....	.....	.....	39.49
19	Pendleton to Washington State Line	36.60	.....	.....	.....	36.60
20	Umpqua Highway	50.13	.....	0.57	.....	49.56
21	Bend to Burns	131.71	2.59	.....	.....	129.12
22	Corvallis-Newport Highway	56.91	0.99	.....	.....	55.92
23	Salmon River Highway	21.92	.....	.....	.....	21.92
24	Portland to Maupin	99.21	6.69	37.04	.....	55.48
25	Siuslaw Highway	67.32	.....	17.60	.....	49.72
26	East Portland-Oregon City	19.51	9.36	.....	.....	10.15
27	Wolf Creek Highway	65.52	2.31	.....	.....	63.21
28	Cannon Beach Road	20.96	.....	.....	.....	20.96
29	Willamette Highway	87.17	.....	64.12	.....	23.05
30	Pendleton to John Day	122.15	1.73	16.67	.....	103.75
31	Burns to Vale	114.97	1.01	.....	.....	113.96
32	Tualatin Valley Highway	42.36	1.82	.....	.....	40.54
33	Klamath Falls-Weed Highway	14.30	.....	.....	.....	14.30
34	Boyer to Dolph	5.60	.....	4.90	.....	0.70
35	Tillamook to Banks	54.32	0.48	.....	.....	53.84
36	Pendleton to Cold Springs	18.50	.....	.....	.....	18.50
37	Santiam Highway	101.30	0.48	53.53	.....	47.29
38	Fourth Street entrance to Portland§	.....	.....	.....	.....	.....
39	Base Line Road	13.00	4.58	.....	.....	8.42
40	Lombard Street	10.90	7.90	.....	.....	3.00
41	82nd Avenue	13.30	5.78	.....	.....	7.52
42	West Portland-Hubbard Highway	17.50	.....	.....	.....	17.50
43	Front Avenue, Portland	2.60	2.60	.....	.....	.....
44	Warm Springs Highway	46.40	.....	7.00	27.00	12.40
	Totals	3,944.53	134.02	426.78	95.89	3,287.84

* Includes 2.20 miles in Celilo Canal Reserve.

† Cape Perpetua Lighthouse Reserve.

‡ Withdrawn from Federal Aid System.

§ Included in Route No. 9.

Indian Reservation. Use of the funds has been confined, so far, to the I. O. N. Highway in Malheur county, the Central Oregon Highway in Harney county, the Warm Springs Highway in Jefferson county, and the Klamath Falls-Lakeview Highway in Klamath county. The I. O. N. Highway and the Warm Springs Highway are being constructed almost exclusively with federal lands highway funds.

Federal lands highway funds may be applied on a 100 per cent basis on those parts of federal lands highway projects which are within the limits of public lands of the kinds mentioned in the preceding paragraph. None can be applied on portions of the projects which are on privately-owned lands or state-owned lands.

Access Road Funds: Access road funds are available to be used only on road and street improvements considered by the War Department and the War Production Board to be essential to the war effort and, then, only on projects on roads giving access to military establishments, war industries and mines producing materials needed for war purposes.

Federal participation on access road projects may be in the entire amount of the cost, but State co-operation is expected where the projects are of benefit to state highway routes.

Strategic Highway Network Funds: Strategic highway network funds may be applied only on projects on highways included in the strategic highway network. This network includes approximately 2,800 miles of the arterial highways in the primary state highway system.

Federal participation in the cost of projects financed with strategic highway network funds is limited to 81.02 per cent.

Flight Strip Funds: Flight strip funds are available only for the construction of temporary landing fields considered by the War Department to be essential to the war effort. Federal participation in the cost of flight strip projects is on a 100 per cent basis.

Advance Engineering Funds: Advance engineering funds are available only for surveys, designing and other preliminary

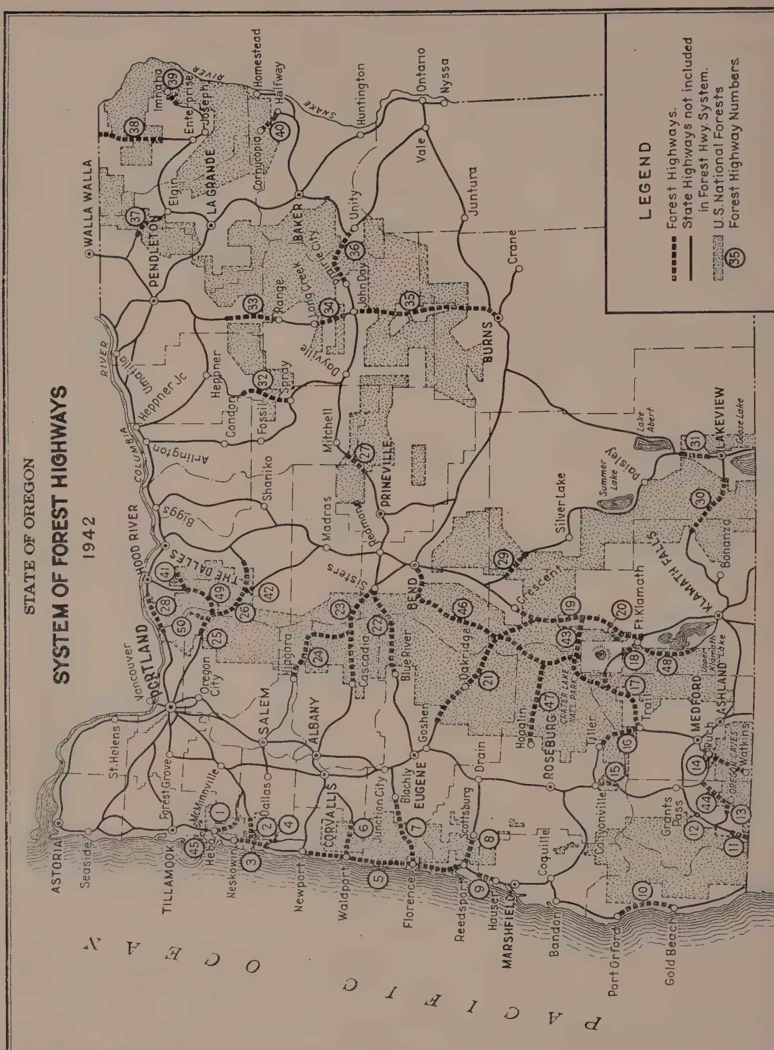
TABLE XIV

Federal Aid Funds and Forest Road Funds Apportioned to Oregon

The following table shows the total federal aid funds and forest road funds apportioned to Oregon under the various federal aid acts:

Period for Which Funds Are Apportioned	Federal Aid Funds	Forest Road Funds	Total
Total of prior apportionments*	$43,182,391.80	$17,853,088.89	$61,035,480.69
Act of June 16, 1936:			
July 1, 1937, to June 30, 1938			
Federal aid funds	2,092,368.00	1,254,717.00	3,347,085.00
Secondary or feeder road funds	418,474.00		418,474.00
Grade crossing elimination funds	588,377.00		588,377.00
Federal lands funds	168,367.00		168,367.00
July 1, 1938, to June 30, 1939			
Federal aid funds	2,048,413.00	1,254,044.00	3,302,457.00
Secondary or feeder road funds	409,683.00		409,683.00
Grade crossing elimination funds	565,844.00		565,844.00
Federal lands funds	167,394.00		167,394.00
Act of June 8, 1938:			
July 1, 1939, to June 30, 1940			
Federal aid funds	1,638,823.00	898,443.00	2,537,266.00
Reapportionment (1937)	8,685.00		8,685.00
Secondary or feeder road funds	245,823.00		245,823.00
Reapportionment (1937)	892.00		892.00
Grade crossing elimination funds	224,953.00		224,953.00
Reapportionment (1937)	1,832.00		1,832.00
Federal lands funds	60,542.00		60,542.00
July 1, 1940, to June 30, 1941			
Federal aid funds	1,884,937.00	1,171,755.00	3,056,692.00
Reapportionment (1938)	6,361.00		6,361.00
Secondary or feeder road funds	245,861.00		245,861.00
Reapportionment (1938)	954.00		954.00
Grade crossing elimination funds	335,220.00		335,220.00
Reapportionment (1938)	840.00		840.00
Federal lands funds	129,201.00		129,201.00
July 1, 1941, to June 30, 1942			
Federal aid funds	1,647,906.00	947,711.00	2,595,617.00
Secondary or feeder road funds	288,383.00		288,383.00
Grade crossing elimination funds	228,715.00		228,715.00
Federal lands funds	96,839.00		96,839.00
July 1, 1942, to June 30, 1943			
Federal aid funds	1,649,132.00	950,642.00	2,599,774.00
Secondary or feeder road funds	288,598.00		288,598.00
Grade crossing elimination funds	228,533.00		228,533.00
Strategic network funds	412,283.00		412,283.00
Advance engineering surveys	164,913.00		164,913.00
Totals	$59,431,537.80	$24,330,400.89	$83,761,938.69

* For the detail of yearly allotments prior to 1938, see former reports of the State Highway Commission.



engineering work for major highway and street improvement projects proposed for construction as a part of a post-war program. They are limited, also, to projects on the inter-regional highway system, which system, in Oregon, consists of U. S. Highway No. 99 and U. S. Highway No. 30.

Federal participation in the cost of advance engineering projects is limited to 62.05 per cent.

Forest Highway Work

Federal forest highway work, unlike federal aid highway work, is performed under the direct supervision of the Federal Public Roads Administration. The State Highway Commission has a voice in the selection of projects and in the types and standards of construction, but does not in any other respect participate in the direction and performance of the work. The Public Roads Administration awards the construction contracts, engineers the work, pays the contractor and does all other things necessary to bring the work to satisfactory completion.

Federal allotments for forest highways have been made annually since 1916 and have been distributed among the states in proportion to their areas of national forest land. Oregon's share of these allotments has been $23,379,786.92. Of this amount, $17,899,683.23 has been expended on the state highway system. This expenditure of federal moneys has been supplemented by State cooperation in the amount of $5,611,-153.49, and county co-operation in the amount of $2,752,160.73, bringing the total expenditure for forest highway projects on the state highway system to $26,262,997.45. This expenditure has resulted in the completion of 713 miles of grading, 126 miles of regrading and widening, 758 miles of rock surfacing, 66 miles of resurfacing, 176 miles of oiling and 118 miles of bituminous macadam.

The war effort of the past eighteen months has forced temporary discontinuance of forest highway work, with the result that no part of the $947,711 allotted to Oregon for the fiscal year 1942, or of the $950,642 allotted for the fiscal year 1943, has been contracted. Work under the allotment for the fiscal year 1941 was contracted and underway before the commencement of war activities and was carried on through the construction season of 1942. Some of this work remains for completion in 1943.

The use of forest highway funds is limited to work on the Forest Highway System, which system has been arrived at

TABLE XV
Oregon Forest Highway System

Forest Road No.	State No	Name	Termini	Length in Miles
1	32	McMinnville-Tillamook	Hebo-East Forest Boundary	13.9
2	39	Salmon River	Oregon Coast Highway-West Polk County Line	13.7
3	9	Oregon Coast	Neskowin-Siletz River	23.0
4	181	Siletz River	Oregon Coast Highway-Forest Boundary	6.0
5	9	Oregon Coast	Yaquina Bay-Umpqua River	68.7
6	27	Alsea	Waldport-Benton County Line	28.4
7	34	Siuslaw	Oregon Coast Highway-Blachly	45.0
8	45	Umpqua	Reedsport-Scottsburg	15.6
9	9	Oregon Coast	Douglas County Line-Hauser	9.6
10	9	Oregon Coast	Port Orford-Gold Beach	31.4
11	25	Redwood	O'Brien Schoolhouse-State Line	5.4
12	25	Redwood	Summit Hayes Hill-Love Station	2.0
13	38	Oregon Caves	3 miles west of Forest Boundary to Caves	11.4
14	.....	Applegate (county road)	Ruch-Watkins	17.0
15	1	Pacific	Canyonville-2¾ miles south of Forest Boundary	11.0
16	230	Tiller to Trail	Tiller to Trail	26.2
17	22	Crater Lake	Trail-Park Boundary	44.2
18	22	Crater Lake	Dalles-California Highway-Park Boundary	7.7
19	4	Dalles-California	Crescent-Old Fort Klamath	57.8
20	424	Sand Creek	Dalles-California Highway-Park Boundary	4.3
21	18	Willamette	Lowell to Dalles-California Highway	73.3
22	15	McKenzie	Blue River to Sisters	51.1
23	16	Santiam	1 mile east of Foster to Sisters	69.9
24	162	North Santiam (county road)	Niagara-Santiam Highway	43.2
25	26	Mount Hood	West Forest Boundary to Wapinitia Jct.	15.4
26	44	Wapinitia	Mt. Hood Highway to 1 mile north of Wapinitia	32.9
27	41	Ochoco	West Forest Boundary to North Forest Boundary	20.0
28	2	Columbia River	West Forest Boundary to East Forest Boundary	27.9
29	19	Fremont	West to East Forest Boundary	16.2
30	20	Klamath Falls-Lakeview	West to East Forest Boundary	29.8
31	19	Fremont	4 miles south of Valley Falls to 6 miles north of Lakeview	13.0
32	321	Heppner-Spray	Mouth of Chapin Creek to John Day Highway	26.3
33	28	Pendleton-John Day	2½ miles northwest of Albee to Range	30.7
34	28	Pendleton-John Day	Long Creek-South Forest Boundary	20.4
35	48	John Day-Burns	John Day-Burns	*69.5
36	5	John Day	Prairie City-Unity	42.6
37	330	Weston-Elgin	McDougall's Camp to Summerville-Elgin Road	23.2
38	11	Flora-Enterprise	State Line to South Forest Boundary	30.3
39	350	Little Sheep Creek	West Forest Boundary to Imnaha	8.8
40	413	Baker-Cornucopia (county road)	Carson to Cornucopia	5.0
41	.....	Loop-Dalles (county road)	Mt. Hood Highway to East Forest Boundary	15.0
42	53	Warm Springs	Wapinitia Highway Junction-Forest Boundary	7.0
43	†	Diamond Lake	Union Creek to Dalles-California Highway via Diamond Lake	38.9

TABLE XV—Continued

Forest Road No.	State No.	Name	Termini	Length in Miles
44	‡	Williams Creek (county road)	Applegate Highway to Oregon Caves Highway	20.0
45	9	Oregon Coast	North Forest Boundary to South Forest Boundary between Hebo and Beaver	1.1
46	§	Cascade Lakes	North Boundary to Crater Lake Park to Bend	101.0
47	.....	North Umpqua (county road)	Rock Creek to Cascade Lakes Highway	60.0
48	421	Klamath Lake-West Side	Forest Boundary east of Gardner Peak to Forest Boundary south of Odessa Ranger Station	20.0
49	26	Mount Hood	Wapinitia Junction-North Forest Boundary	21.5
50	.....	Timberline	Mt. Hood Highway Junction to Timberline Lodge	6.0
			Total mileage on Forest Highway System	1,382.3
			Mileage on State System	1,187.6

* Includes 2.5 miles on the Central Oregon Highway.
† State Secondary Highways 233 and 425.
‡ Includes 7.2 miles on State Secondary Highway 261.
§ Includes 17.1 miles on State Secondary Highways 232 and 372.

by mutual agreement between the Public Roads Administration, the National Forest Service, and the State Highway Commission. It includes only roads which are within or near to National Forests. A listing of the roads in the system appears in accompanying Table XV. Most, but not all, of the roads included are state highways.

Financial co-operation in forest highway work by the State or by counties is not required but is sometimes given. In all cases, the cost of right of way across lands not owned by the Federal Government is borne by the State or, if the road is a county road, by the county.

Sections of highway constructed with forest highway funds are maintained by the federal government for two years. Responsibility for maintenance is then assumed by the State or the county, depending on whether the project is, or is not, on the state highway system.

Projects included in the 1941 fiscal year program were as follows:

Highway	Section	Kind of Work
Oregon Coast	Hubbard Creek Bridge	Concrete bridge
Tiller-Trail	Cushman Ranch-Trail	Surfacing and oiling
Willamette	Odell Lake Section	Surfacing and oiling
Santiam	Toll Creek-Slide Creek	Grading, surfacing and oiling
Santiam	Hogg Rock-Suttle Lake	Grading and surfacing
Klamath Falls-Lakeview	Quartz Mtn.-Smalley Ranch	Grading, surfacing and oiling
Pendleton-John Day	Beech Creek-Forest Bdy.	Surfacing and oiling
John Day	Prairie City-Ricco Pass	Grading
Warm Springs	Wapinitia Jct.-Forest Bdy.	Clearing
Cascade Lakes Road	Bachelor Butte-Devils Lake	Grading
Timberline Road	N. Unit, Timberline Section	Grading and surfacing

Works Projects Administration (WPA) Projects

The Federal Congress in 1935 established an agency to provide emergency employment for persons requiring public relief, which agency was known as the Work Projects Administration (WPA). The funds placed at the disposal of this agency were allotted for relief projects and were used, in part, in the construction of highways.

Under the provisions of the act referred to, it was required that projects be sponsored by local governmental agencies and that the local governmental agencies co-operate in the projects financially or by the furnishing of materials, equipment or other valuable service. These local co-operative contributions were, under certain conditions, as low as 10 per cent and, under others, as high as 75 per cent, of the cost of the project. The primary purpose of the federal funds was to provide work for the unemployed, particularly those persons requiring relief, and the amount of the federal funds available for non-labor items was limited to approximately 10 per cent of the federal funds allotted to the project. The State Highway Commission, recognizing that some form of public relief was necessary, co-operated with the Federal Government and sponsored a number of projects, providing co-operative funds wherever it was clear that the sponsored project was of benefit to the state.

Nearly all the projects undertaken were completed previous to the period covered by this report, and during the past two years only five projects have been carried on under this cooperative arrangement. The five projects referred to were the Wilson River Highway project, the Wolf Creek Highway project, retaining walls on Canyon Road, the Camp Clatsop-Fort Stevens-DeLaura Beach project, and the revision of highway alignment at Tongue Point.

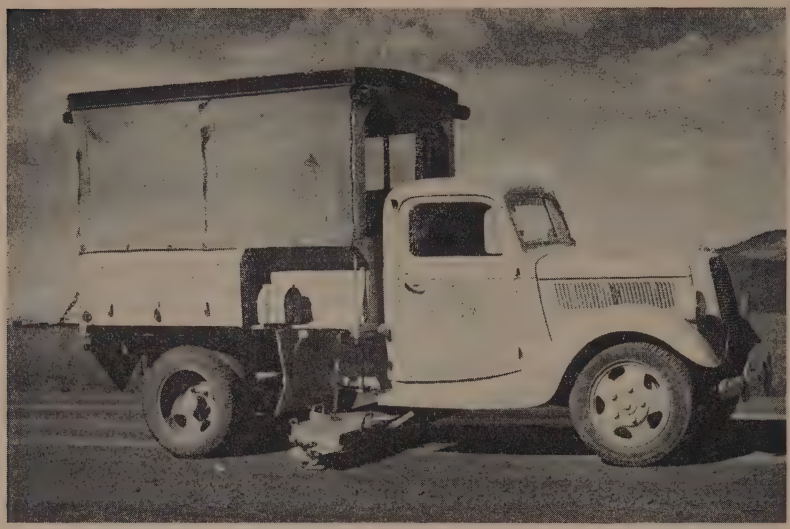
The major projects were the Wilson River and Wolf Creek projects, which projects were continuations of previously undertaken projects involving the construction of two major highways between Portland and Oregon Coast points in Clatsop and Tillamook counties. Both of these highways are now completed from their termini on the Oregon Coast Highway to connections with existing roads in Washington county, thus making substantial additions to the State Highway System. Without WPA assistance, the construction of these two highways could not have been completed for several years.

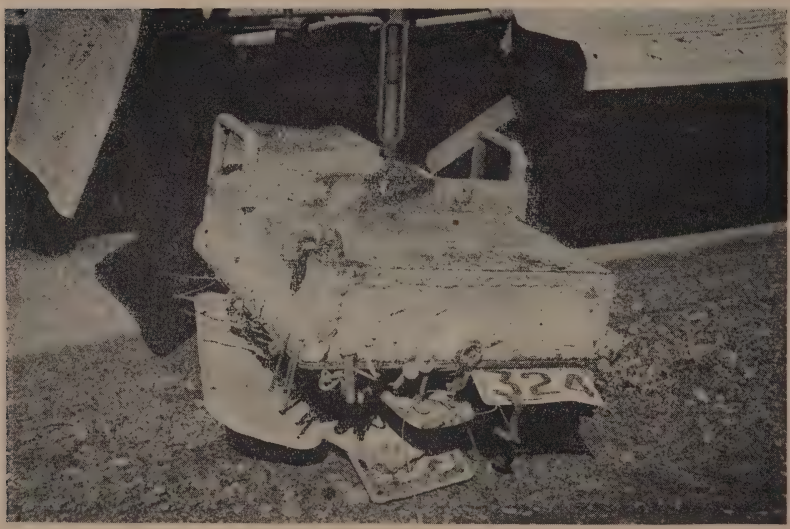
The Canyon Road retaining wall project completed work undertaken in previous years and was of material benefit in slope stabilization. The Camp Clatsop-Fort Stevens-DeLaura Beach project was undertaken at the request of army authorities, its purpose being to connect military establishments at Fort Stevens and Camp Clatsop. The Tongue Point project was for the clearing and grubbing of right of way for a planned revision of the Columbia River Highway east of Astoria.

The outbreak of the war and the employment of labor in defense industries has practically eliminated the need for relief labor work. As a consequence, WPA projects involving highway work have been discontinued.

The following is a list of the expenditures made on WPA highway projects during the period July 1, 1940, to June 30, 1942:

Project	By State	By WPA	Total
Wilson River Highway Project	$ 267,140	$ 978,581	$1,245,721
Wolf Creek Highway Project	415,672	1,073,384	1,489,056
Canyon Road Retaining Walls	6,568	18,381	24,949
Camp Clatsop and DeLaura Beach Roads	14,733	522,340	537,073
Tongue Point Revision	3,211	25,207	28,418
	$ 707,324	$2,617,893	$3,325,217





OVER 30 TONS OF METAL WERE REMOVED FROM STATE HIGHWAYS DURING THE BIENNIUM BY THIS HIGHWAY MAGNET TRUCK

REPORT OF CONSTRUCTION DEPARTMENT

H. G. SMITH, *Construction Engineer*

The construction program during the present biennium has been chiefly noted for the change from peacetime requirements to those of the war effort. The first phase was the endeavor to anticipate the need for military rather than civilian highways, and to that end estimates were prepared for the so-called strategic system, which at first involved those highways considered vital to the movement of troops and the industrial well-being of the State due to increased war activities. Later it began to be realized that the manpower would be insufficient to carry on large construction activities, and the strategic system was modified to include only those projects vitally necessary for the war effort. Since Pearl Harbor, however, the strategic system has been entirely lost sight of, and activities have been confined to the completion of the jobs under way and the building of those access roads vitally necessary to serve war industries and army camps.

As soon as the going projects are completed, the personnel of the department will be occupied with plans for post-war construction. It is anticipated that with the demobilization of the Army there will be immediate call for a large increase in highway construction, and it is desired to have plans in such shape that projects can be contracted as soon as funds are available, thus helping to take up the slack in employment which will follow the suspension of war activities and the return of the armed forces to civilian life.

Access Roads

During the spring of 1941 when Camp White was first proposed, it was realized that the Crater Lake Highway would be inadequate to serve a cantonment of the size desired, since the original highway had been built for many years and traverses a terrain of clay soil where a great deal of trouble has been experienced in maintaining the roadbed. It was also anticipated that, under existing arrangements, traffic congestion on the Pacific Highway in Medford would be intolerable; therefore, without waiting for the passage of the Act of Congress which provided funds for access roads, the Department started surveys

for the realignment of the Crater Lake Highway from Medford to the camp, together with two one-way streets through the city of Medford which would be adequate for the traffic anticipated.

Due to the fact that this survey was carried on simultaneously with the survey for the camp, it was possible to design a road system suitable for through traffic on the Crater Lake Highway, as well as suitable for military traffic to the camp. A traffic interchange, embodying recent ideas and standards, was constructed at the entrance to the city of Medford in order to disperse traffic to the one-way streets.

Since the construction of the camp, two other access roads in the vicinity have been designated. One is to connect the cantonment with the Pacific Highway near the Tolo Overcrossing, giving direct access from points west and north. The other is to serve Evans Valley, the existing road to which is to be blocked on account of the artillery range.

Owing to the fact that the construction of Camp Adair was considered more uncertain than Camp White, and due to the uncertainty of access funds being available for reconstruction in that vicinity, it was not possible to be as forehanded with surveys for access roads needed at that camp. However, as soon as construction of the camp was authorized, authority was secured from the Public Roads Administration to undertake surveys for the required reconstruction of the U. S. Highway 99W between Monmouth and Corvallis.

Between Lewisburg and Corvallis, the survey followed closely the alignment of the existing highway, the plan being to effect modernization of the highway by widening the existing pavement to a width of 22 feet, with 8-foot shoulders of rock and gravel. Between Monmouth and Suver, alternate surveys developed the fact that it would not be economical to undertake modernization on the existing alignment. Therefore, a new alignment was adopted on which it will be possible to avoid the excessive curvature and the short sight distances which obtain on the old road. The surfacing adopted for this section is a 22-foot bituminous macadam with 8-foot shoulders. Two vehicular overhead crossings and three pedestrian over-

head crossings are provided in the cantonment area to enable the movement of troops across the highway without conflict with the highway traffic.

During the construction of Camp Adair, the limits of the area required for training grounds were left undetermined, and when decision was made late in the fall of 1942 the area was found to be considerably larger than had been anticipated. This made necessary the closing of the Kings Valley and Dallas-Kings Valley secondary state highways. Surveys are now being made to provide substitute routes for those highways, and requests will be made to the proper authorities for access road funds for construction as soon as the surveys are completed and the estimates of cost prepared.

At the start of the construction of the camp, construction headquarters were established at Albany. Albany immediately became the home of large numbers of construction employees, and it was soon indicated that the county roads leading from Albany to the camp were inadequate to handle the construction traffic; also, that they would be inadequate to handle the traffic involved in anticipated military operations after the camp was organized. For this reason, state funds were provided for the reconstruction of the county road between the east gate of the camp, near Wells, and a point near Granger on the Albany-Corvallis Highway. This reconstruction consisted of widening the grade to provide a 20-foot bituminous macadam roadbed, a reduction in some of the sharper vertical curves, and a strengthening of the surfacing sufficient to carry the anticipated traffic. Fine alluvial soil was encountered over a portion of the project, which made stabilization difficult during the rainy season when the work was being done.

Soon after the active start of ship construction at the Oregon Shipbuilding Corporation in Portland, it was found that little thought had been given to getting the employees to and from work, and that serious congestion of traffic was developing in the streets leading to the shipyard. A study of the situation was made and a request submitted for access road funds with which to undertake needed improvements. To give more immediate relief, however, a co-operative agreement was entered into between the State Highway Commission and the City of

Portland for the widening of Burgard street from a four to a six-lane width. Although this street was widened and paved during the winter months, the work was carried on with complete success and traffic conditions were materially improved. Federal funds were then secured with which to widen North Swift Boulevard and Simmons road from the shipyard to an intersection with Columbia Boulevard at Walker street. This section, now widened to four-lane width, is serving as a distribution artery for the traffic flowing to the Oregon Shipbuilding Corporation for much of North Portland and Vancouver, as well as from several new housing projects.

Shortly after the start of construction at the Swan Island Shipyard, plans were made and access road funds secured for the widening of the approach to Swan Island and the improvement of the street approaches leading thereto. These involved Greeley Avenue and Going Street, together with cloverleaf connections to those streets.

An underpass is also being provided at Denver Avenue to give access to the new housing project known as Vanport. Funds for the actual construction of this project are being provided by the Federal Housing Administration, although the design has been prepared and the construction is being supervised by the State Highway Department.

An access road is also being constructed over the Sunderland road to give access to the ferry leading to the Vancouver shipyard. The grading for this project was performed expeditiously, but almost insurmountable difficulty has been experienced in obtaining lumber for two small bridges due to the various freezing orders issued to conserve lumber for Army use and to labor troubles incidental to the cutting and delivering of the lumber.

In order to facilitate construction operations at the aluminum plant near Troutdale, the Highway Department, in cooperation with Multnomah County, improved the access road to that plant during the spring of 1942. This work had to be done under very unfavorable weather conditions and as a re-

sult some breakage of the new pavement, under heavy hauling, was experienced.

Access funds were also provided for a revision of the Columbia River Highway in the vicinity of Astoria to permit of the enlargement of the Tongue Point Naval Base. Owing to the shortness of the construction season in that vicinity, to the clay nature of the soil, and to other difficulties encountered, the contractor was unable to complete the project in 1942. Construction of the pavement will, therefore, have to be deferred until the spring of 1943.

In cooperation with the W. P. A., which furnished the labor and the funds for surfacing, and with Clatsop County, which furnished the right of way, the State Highway Department supervised the location and construction of a road leading from Camp Clatsop to Fort Stevens, with a connection to the Oregon Coast Highway near Skipanon. This road is of the very highest type bituminous macadam.

Flight Strips

The Defense Highway Act of 1941 carried an appropriation for flight strips, which were originally intended to be widened sections of highways, particularly through the uninhabited areas, where planes could land when lost or in trouble.

With the advent of the war, however, the ideas concerning the location and size of the flight strips were modified to meet the requirements of the large bombers rather than those of the commercial planes. This resulted in lengthening and widening the flight strips beyond the size originally contemplated and the abandonment of the idea of widening or paralleling the highway.

Flight strips are now constructed of a size sufficient to accommodate the largest bombers and are built in the direction of the prevailing winds. The sites selected are usually near important highways and in areas distant from existing airfields.

Contracts have been let and work is actively under way on three flight strips. A fourth strip is in immediate prospect.

Major Federal Aid Projects

One of the major jobs completed during the biennium was the Boardman-Stanfield Cut-off, which is an extension of the Pendleton-Stanfield revision made some years ago. The new Boardman-Stanfield Section will result in a saving of 7.3 miles of travel distance, and in a corresponding saving in time for all travel moving between Arlington and Pendleton. An unusual feature of the location is a tangent 29.4 miles in length; the longest in the state of Oregon. A portion of this tangent overlaps the Stanfield-Pendleton Section. The new route gives access to the Umatilla Ordnance Depot, and its opening greatly facilitates the operations of that plant. Access road funds have been used in providing a short connection and grade separation structure between the main highway and the ordnance depot itself. This is one of the most beneficial revisions ever constructed on the Oregon Highway System, since the average saving to the motorist, based on the traffic for a 30-year period, results in an annual saving, through reduction in mileage and time, of $218,000; whereas, the entire cost of the project was only $600,000. This is illustrative of the excessive toll which the public sometimes must pay in travelling and in transporting goods over out-of-date highways.

Another important section, which has been under construction since 1932, and was opened to traffic during the biennium, is the Neahkahnie Mountain Section. This shortens the route of the Oregon Coast Highway between Seaside and Tillamook by approximately six miles and affords one of the unusual ocean drives in the state, besides giving access to several of the larger state parks. Much, however, remains to be done between Cannon Beach Junction and Hug Point to modernize the existing road to state highway standards.

The timely opening of the metropolitan section of the Front Avenue project in Portland is illustrative of the foresight that is being exercised in anticipating the transportation needs of the state. Portland's war industries have so congested traffic in the downtown district that the service of the Front Avenue improvement in by-passing traffic around the business area is of even greater benefit than was anticipated. It is also prov-

ing of service as a means of access to the ferries which carry workers from downtown Portland to the shipyards. Soon after the Front Avenue project was started, the necessity for through arterials through cities became recognized as of national importance, and it is anticipated that a large phase of highway construction during the post-war period will be work of this character.

Loss of Experienced Personnel

One of the difficulties encountered in the carrying on of construction activities during the past biennium was the shortage of competent personnel for engineering crews. Approximately 50 per cent of the construction department's engineering force below the rank of transitmen have left the department to enter the military service or to take part in other activities associated with the war effort. Inability to replace these men with competent substitutes increased very greatly the load to be carried by the remaining experienced personnel and introduced many vexing complications in the exercising of proper engineering control over construction operations.

Construction Difficulties

Priority control on materials and equipment parts, and "freezing orders" on new equipment and on some materials, together with labor shortage, have been sources of great difficulty, loss of time and increased cost in the performance of construction work. These obstacles have become so serious that contractors are hesitant to undertake new projects, and projects which normally would be considered attractive now go begging for bidders. Difficulty in obtaining repair parts appears to have been the principal of these factors, as breakage of even very minor parts of equipment frequently delayed operations for days or for weeks. Lack of experienced labor necessitated the employment of inexperienced and otherwise inferior labor and reduced greatly the labor output. Acting in combination, these several factors have slowed down the performance of work and have greatly reduced the construction accomplishment of the biennium.

BRIDGE OVER DEVILS LAKE FORK ON THE WILSON RIVER HIGHWAY IN TILLAMOOK COUNTY

REPORT OF BRIDGE DEPARTMENT

G. S. PAXSON, *Bridge Engineer*

Bridge Department activities during the past biennium have consisted of the design and construction of bridges, buildings, and miscellaneous structures for the State Highway System, and of bridges and miscellaneous structures for counties.

Conditions brought about by the war made it necessary to eliminate some projects which were scheduled to be constructed and to concentrate on those that would be most helpful in the war effort.

Early in 1942 it became evident that certain critical materials could not be obtained even for necessary bridges if other materials not so critical could be substituted. The first material to be placed on the critical list was steel, both reinforcing and structural. A short time later timber preservatives were also placed on the critical list.

Many of the structures planned for immediate construction had been designed to use one or more of these critical materials, and it became necessary to make new designs. The reconstruction of the approach to the Harrisburg bridge was designed to use a treated timber trestle with a reinforced concrete roadway. As treated timber had not yet become critical, the plans were redrawn to eliminate the concrete roadway and to substitute a timber roadway in its place.

The bridge over the Umpqua river north of Dillard, the bridge over the Coast Fork Willamette river near Goshen, and the Judkins Point Overcrossing had been designed to use structural steel main spans with reinforced concrete approaches. As treated lumber was now on the critical list, these structures were designed to be constructed entirely of untreated wood. After contracts were let and construction work was under way on these and other untreated timber structures, conditions again changed, making it impossible to get the better grades of lumber called for by the plans. In cases where the structural grades of lumber had not been delivered to the job sites, the plans were again changed to permit the use of lower grades. For stream piers under timber truss spans and for certain cul-

verts where reinforced concrete was considered necessary the department scoured the country for used steel suitable for concrete reinforcement. Some old irrigation flume hoops of five-eighths-inch round bar stock and some railroad rails of various sizes were obtained, and designs were altered to permit their use.

During the biennium, designs were prepared for 131 structures, including bridges, culverts, grade separations, retaining walls, and other miscellaneous structures on the State Highway System—estimated total cost, $1,629,000; six maintenance building projects—estimated total cost, $70,000; and 12 bridges, culverts, and miscellaneous structures for counties. Forty-four structure contracts were entered into during the biennium with a total estimated cost of $1,269,000.

Grade Separation Projects. Nine railroad-highway grade separation projects were started during the biennium with a total estimated cost (structures only) of $370,000. The largest of these is the Judkins Point Overcrossing at Eugene. As mentioned hereinbefore, it was originally planned to build this structure, which is a part of the Pacific Highway realignment through Eugene, of reinforced concrete and structural steel; however, in view of the necessity for conserving both structural and reinforcing steel, the structure was designed for the use of timber. The structure, when completed, will consist of 613 linear feet of frame trestle with a 52-foot roadway and two five-foot sidewalks. The contract for the structure was awarded to Barham Brothers on June 25, 1942, with an estimated total cost of $86,000. Work on the project is approximately 75 per cent complete.

The Nyssa Grade Separation Project was completed during the past biennium. This project, which consists of a reinforced concrete and structural steel underpass, carries the Old Oregon Trail Highway under the tracks of the Union Pacific Railroad Company at Nyssa.

Due to the fact that a portion of the roadway was constructed below the level of the water table at the site, the abutment and retaining wall sections were waterproofed to reduce seepage to a minimum. As an added precaution, an auto-

matic pump with a capacity of 300 gallons per minute was installed to remove surface water and such seepage water as entered the subway before it reached the level of the pavement.

The contract for the work was awarded to Mr. Henry L. Horn of Caldwell, Idaho, on July 25, 1940. The work was completed on September 1, 1941, at a cost of $217,614.54.

Goose Rock Bridge Over John Day River. This bridge replaces an old untreated wood truss span which had deteriorated to the extent that it was no longer economical to make repairs. A realignment of the highway necessitated the placing of the bridge on a sharp skew at the river crossing. Due to the sharp skew, piers as usually constructed would have offered too much obstruction to the stream flow. The river piers were therefore designed as single, square shafts under the center line of the roadway with cantilever arms to carry the stringers.

The contract for the bridge, which is a concrete structure (320 feet in length with a 26-foot roadway) and for the new section of road (approximately 0.18 mile in length), was awarded to Averill and Corbin on December 18, 1940. Work was completed on October 31, 1941, at a total cost of $47,200.

Front Avenue Project, Portland. The Bridge Department's part of this project consisted of the designing and supervising of the construction of the necessary structures. The structures consisted of retaining walls at Water Avenue, Front Avenue, and Stark street; vehicular underpasses to separate traffic at Lincoln street and Front Avenue, and Harbor Drive and Water Avenue; underpasses to permit pedestrians to cross under Front Avenue and Morrison street at the west end of the Morrison street bridge; and the remodeling of the westerly ends of Hawthorne and Morrison street bridges to permit Harbor Drive traffic to pass under these structures.

The work at the west end of the Hawthorne bridge consisted of the removal of the old pile trestle approach spans and the construction of two reinforced concrete spans in order to provide sufficient clearance for traffic on the new road known as Harbor Drive. Although it was necessary to close the Hawthorne bridge to automatic traffic during construction, the

work was performed without undue interference with street-car traffic. The contract for this work was let to Lindstrom Brothers on May 8, 1941. Work was completed on April 7, 1942. The total cost was $36,447,04.

To permit passage of traffic on Harbor Drive without interference from other traffic, it was necessary to remodel the west end of the Morrison street bridge. This work consisted of the removal of the west pier and 45 feet of the steel span, the reconstruction of the steel span to a shorter length, the construction of a new pier on the harbor wall, and the construction of two reinforced concrete approach spans. The work also included the construction of subways to permit pedestrian traffic to cross under Front Avenue and Morrison street. These subways were built 8 feet high and 10 feet wide, lined with glazed, white tile, and well lighted. The constant use of these subways has proved their effectiveness. The contract for the above-described work was let to Birkemeier & Saremal on September 4, 1941. Work was completed on September 2, 1942. The total cost of the project was $143,000.

In addition to the structures described above, several other structures have been designed, but, due to the existing emergency, further work is being postponed.

Buildings. Eight building projects were completed at a total cost of $197,300. The largest and most important of these projects was the Engineering Laboratories building at Salem.

For eleven years preceding November 7, 1941, when they moved into the new building, the laboratories were housed in one-half of the basement of the Agriculture building. The quarters were cramped and unsuitable in other ways for laboratory work. In 1940, the State Printing Department, which occupied the first floor and half of the basement of the Agriculture building, found it necessary to obtain more space. The Board of Control then advised the Highway Department that it would be necessary to obtain other quarters for the laboratories. No other suitable quarters being available, the Highway Commission authorized the construction of a new building designed especially for laboratory use. The building is of re-

inforced concrete, covering a ground space of 112 feet by 120 feet. The front part of the building is two stories, with the upper story occupied by the Traffic Engineering Department and the Division Engineer for the Salem district. The entire first floor is occupied by the Engineering Laboratories.

The contract for the building was awarded to Mr. L. B. James on December 18, 1940. The building was to have been completed on July 31, 1941, but, due to shortage of materials, it was not ready for occupancy until November 7, 1941. The total cost of the entire project was $124,000.

SHORTAGE OF MAN POWER NECESSITATED THE USE OF WOMEN ON HIGHWAY MAINTENANCE CREWS

REPORT OF MAINTENANCE DEPARTMENT

E. A. COLLIER, *Maintenance Engineer*

Wartime conditions are causing many adjustments in the work and organization of the Maintenance Department; however, a normal maintenance program was completed in the biennium. Restrictions placed on critical materials and shortages of manpower were met by substitution of less critical grades of material, by increasing working hours to 48 hours per week, and by hiring women for certain jobs, so that serious reduction in the 1942 program did not occur.

Over 400 skilled and trained men have left the Department for the armed forces and for vital defense industries. The increased cost of living and the rate at which men were leaving the Department led to wage raises in August, 1941, and in April, 1942. In August, 1942, deferment was requested for key men in certain essential classifications. These actions helped some, but maintenance crews in some portions of the state were seriously shorthanded. The paving crews were affected most, and in two instances paving operations were transferred to other locations. In several cases, women were employed as flagmen, truck drivers, roller operators, paintmen, and timekeepers, and proved very satisfactory. There was some shortage on oiling and bridge crews, and at present section maintenance crews are seriously short of men for winter maintenance in certain sections of the state. For example, the decrease in the number of employees from September, 1941, to September, 1942, on section crews was 992 to 752, on bridge crews was 206 to 106, and on paving and oiling crews was 468 to 431 men.

The growing shortage of manpower during the latter half of 1942 acted to automatically reduce maintenance activities to bare essentials. Such work as mowing grass, painting guard fences, landscape maintenance, and snow removal on recreational roads is being deferred as less essential to the war effort than the repair of road surfaces and bridges.

War conditions have caused the relaxation of load limits and there has been an increase in concentrated, heavy hauling of logs, lumber, military equipment and freight. The weather in

the fall of 1942 has been favorable and despite the shortage of manpower and other handicaps, a larger tonnage of pavement patching and a larger mileage of reoiling was required and completed this year than ever before. The highway surfaces and bridges are in good condition on December 1, 1942.

There was a continued slight increase in mileage of highways maintained, being approximately as follows:

1938	6,828 miles
1939	6,906 miles
1940	7,025 miles
1941	7,108 miles
1942	7,199 miles

Maintenance Organization

Maintenance is defined as that work necessary to preserve the highways in constant good condition, comparable to their condition when originally constructed, and is divided into two classes, "special maintenance" and "general maintenance." Special maintenance includes large operations, usually contracted, such as resurfacing or the stockpiling of crushed rock for future use. General maintenance consists of regular and emergency repairs and replacements and such traffic service activities as are required.

General maintenance is of such nature that it cannot well be contracted and is performed by state force crews, under the supervision of district maintenance superintendents, who report to division engineers who, in turn, report to the maintenance engineer. The state is divided into five divisions, 16 districts, and 127 sections. Section crews are strategically located at permanent headquarters from which they carry on repairs and operations. They patrol their sections during stormy weather, plow snow, sand icy pavement and remove slides, fallen rocks or trees. They are alert at all times to give prompt attention to needed repairs and to traffic service and safety.

Bridge crews, extra gang crews, and paving and oiling crews are organized independently of the section crews to perform their particular types of work. The district maintenance su-

perintendents organize and supervise the crews and equipment, arrange for materials and supplies, and in general direct all operations in their districts.

Paving and Oiling Crews

Paving crews operating nine portable paving plants placed a total of 88,063 tons of bituminous concrete during 1942 at an average cost of $6.86. In 1941, the output was 84,548 tons at an average cost of $5.93. This type of patching has proved most effective on all types of surfaces.

Five state force oil crews applied 3,215,270 gallons of road oil in 1942, a considerable increase over the 2,403,630 gallons applied in 1941. Increased heavy truck haul, particularly logs, has required increased patching and reoiling.

Anticipating restrictions on transportation facilities, much of the 1942 supply of paving asphalt was purchased in wood barrels early in the year, and, as a result, when steel barrels and tank cars were unavailable, there was no shortage of asphalt for the year's paving. Road oil for 1942 was also purchased early. Storage sumps having an aggregate capacity of 200,000 gallons were constructed, and a tank of 600,000-gallon capacity, in Portland, was leased. With these storage facilities completely filled early in the year, there was little delay in oiling operations when shortage of tank cars developed later in the season. This storage arrangement was of benefit, also, in relieving the general tank car shortage that was suffered by tank car users during much of the summer season.

Signs, Signals and Traffic Lines

The work of installing and maintaining signs and signals, and the painting of traffic lines, is performed under the supervision of an assistant maintenance engineer. In 1941, there were ten sign crews, eight of which worked on state highways, and two of which were engaged in maintaining direction signs on county roads. There were two electrical crews and six center-line striping crews. In 1942, the shortage of manpower forced the discontinuance of one of the county road sign crews and one of the center-line striping crews.

VIEWS OF ONE OF THE NINE PORTABLE PAVEMENT PATCHING PLANTS OPERATED BY STATE FORCES

A major portion of the signs installed are manufactured in the Salem shops. On account of the necessity of conserving critical materials, no metal signs have been purchased in 1942, and a method of manufacturing substitute signs, using a masonite front and plywood back for reflectorized signs, has been developed. Experiments conducted with this type of sign have proven very successful, and they can be distinguished from metal signs only on close inspection.

During 1942, the Sign Department operations have been greatly increased by work connected with defense and war activities. The principal part of this work was the posting of several thousand signs requested by the Army and civilian defense authorities. It consisted of marking military routes through the cities, marking evacuation routes in the western half of the state, marking dimout areas for motorists on the Coast Highway, and posting the limits of statewide military restricted zones. The construction of military reservations within the state has likewise called for numerous direction and warning sign installations.

The electrical crews install and maintain traffic signals and lighting facilities for the illumination of tunnels, bridges, ferries, highway junctions and, also, floodlights for direction signs. These facilities have all been affected by dimout and blackout restrictions and many lights have been temporarily extinguished and others hooded.

In 1941, approximately 6,000 miles of center line was striped at a cost of $22 per mile for a solid four-inch line. In 1942, approximately 5,000 miles of center line was painted at a cost of approximately $22 per mile. However, in order to conserve materials, a three-inch broken line was painted on the major portion of the highways the past year, painting a ten-foot strip and skipping a ten-foot strip. This resulted in a saving in materials of $10 per mile; however, increased costs for materials and labor made the total average cost for 1942 equal to that for 1941. There were several hundred miles of luminous type traffic line painted in both 1941 and 1942 at a cost of approximately $60 per mile. This luminous traffic line is painted on the principal arterial highways, and, besides being more effective, has

several times the life of ordinary lacquer line. The traffic line work is carried on with special machines designed and built in the Department's shop.

In 1941, at the request of the Old Oregon Trail Association, a series of ten rustic historical signs were constructed and installed on the Upper Columbia and Old Oregon Trail Highways. The text for the signs was submitted to the Oregon Historical Society for approval. A series of ten additional signs was planned for 1942 installation, but the work was deferred because of the outbreak of war.

Additional rustic signs were constructed and installed in 1941 at Abert Rim, a geological phenomenon located north of Lakeview. At Oregon City historical signs were placed at the north and south city limits. Several of the large rustic signs were constructed for the Forest Service within the forest boundaries.

In 1941, service club sign racks were installed at the city limits of approximately twenty cities, which provide standard panels for each of the various service clubs in each of the cities, and which do away with the miscellaneous collection of signs which formerly cluttered up city entrances. Further work along this line was deferred in 1942.

Bridge Maintenance

The maintenance, repair and reconstruction of bridges is performed by regular full-time crews moving about the state as occasion requires. In 1941, there were sixteen full-sized crews engaged in bridge repair work, and five smaller crews engaged in bridge painting and the repair and painting of buildings. During 1942, the labor situation and the restrictions on critical materials, resulting from the war effort, forced reduction of the number of crews to fourteen. The repairs or replacements to be made are determined from quarterly field inspections and timber boring tests. The work is performed in such manner as will cause the least possible inconvenience to traffic.

The number of bridges on the State Highway System is 2,388. Their original cost was $27,920,000. The following table shows

an inventory of the bridges by principal classifications and a breakdown of maintenance expenditures, according to these classes:

Class of Structure	Length In Feet	Per Cent of Total	Maint. Cost, 1940		Maint. Cost, 1941	
			Total	Per Foot	Total	Per Foot
Untreated timber	96,534	37	$172,248	$1.84	$189,538	$1.96
Treated timber	24,368	9	4,865	0.21	6,696	0.27
Concrete spans	85,173	32	16,889	0.21	24,776	0.29
Steel spans	56,786	22	97,048	1.74	95,066	1.67
Culverts and miscellaneous	.....	....	37,337	.....	32,453	.....
Totals	262,861	100	$328,387	.....	$348,529	.....

Restrictions imposed on Douglas fir lumber and timber by the War Production Board made it necessary to postpone considerable bridge maintenance on timber structures which was budgeted for 1942. Under this restricted procedure, only 20 M—F.B.M. of fir lumber was delivered by the mills between January 1 and August 12. On August 12 undelivered orders, four to eight months old, amounted to 332 M—F.B.M. During the period from August 12 to October 29, purchases were made and delivery taken of 575 M—F.B.M. of lumber and timber for bridges. On October 29 the War Production Board issued Limitation Order L-218, further restricting the purchase of Douglas fir lumber. On that date, there was a total back order of lumber of 659 M—F.B.M., required for the maintenance of timber bridges, which can be secured only as authorized and released by the Lumber and Lumber Products Division of the War Production Board.

Of the work performed during the biennium, three projects are unusual and warrant special mention.

1. In the early fall of 1941, unusually heavy storms completely demolished the bridge crossing "D" river, the outlet of Devils Lake, located on the Oregon Coast Highway about three miles north of Taft. An untreated timber pile trestle bridge, by-passing the original bridge site on 12° curves, was constructed; and by working two shifts normal traffic was restored in seven days after construction was started. The total cost was $11,775.54.

2. By midyear 1942, the nation's construction program under the war effort almost eliminated highway contract con-

struction. No bids were received, after advertising twice, to replace the South Umpqua River bridge on the Pacific Highway at Dillard. The old bridge was unsafe for legal loads, as well as narrow. Therefore, the Highway Commission ordered the bridge rebuilt and widened with timber by state forces. Work was commennced on July 7. The estimated date of completion is December 20, 1942. The work required the widening of the existing concrete piers, the replacing of three 144-foot untreated timber truss spans, and the widening of the roadway. The estimated cost is $64,432.

3. On September 4, a loaded logging truck completely demolished a 60-foot timber Howe-truss bridge crossing Big creek on the Coos Bay-Roseburg Highway twenty miles from Coquille. By concentrating bridge crews, the debris was removed and traffic restored over a temporary timber trestle in 28¼ hours after the accident. The permanent replacement structure is under construction, but incomplete at this writing. The estimated cost, including the temporary bridge, flagmen, and traffic service is $9,540.

LATE TYPE OF DIESEL LOG TRUCK

Operation of Ferries and Drawbridges

Expenditures of approximately $65,000 annually are necessary for the operation of drawbridges and ferries. The Highway Commission operates, under contract, two toll-free ferries, one at the Enegren crossing of Coos river in Coos county and the other at Boone's crossing of the Willamette river on the Beaverton-Aurora Secondary Highway near Wilsonville. There are twenty-one drawbridges over navigable streams, all operated according to the rules and regulations established by the Secretary of War. When a state of war exists, the U. S. Coast Guard acts as the enforcing agency, assuming jurisdiction over all navigable waters and their respective obstructions.

Maintenance of Buildings

Selected bridge crews specialize in the maintenance, repair and alteration of highway department buildings. These buildings consist of headquarters for the Division Engineers and District Maintenance Superintendents, equipment repair shops, equipment storage buildings and scale houses. The maintenance and repair of 50 thirty-ton platform scales, as well as the installing of new scales, is delegated to one bridge crew especially qualified for this work. Eight of these units were installed during the biennium at an average cost of $2,500 each.

Weight Control of Trucks

In May, 1941, the Highway Commission authorized the organization of a division of weighmasters for the purpose of checking all carriers of logs, poles, and piling at 50 state-owned weighing stations. The established policy toward the log and pole carriers was necessary to control the increasing costs to repair the damage to highway surfaces, resulting from excessive and illegal loads.

The organization now consists of 20 weighmasters directed by a chief weighmaster.

In September, 1941, the Highway Commission authorized the filing of complaints in the local justice courts for violations determined at the weighing stations. Since that date, the results have been encouraging, decreasing the percentage of

violations to total loads weighed from 3.98 per cent in September, 1941, to 1.4 per cent in August, 1942. The following is a brief summary of operations from September, 1941, to September, 1942:

	Number	Per Cent of Total
Loads weighed:		
Under 54,000 pounds	75,828	60.9 per cent
54,000 to 59,400 pounds	37,134	29.8 per cent
59,400 to 71,400 pounds	11,539	9.3 per cent
Total	124,501	100.0 per cent
Violations	2,817	2.26 per cent
Fines imposed	$12,000	.....

State Maintenance on City Streets

Increased heavy traffic, particularly log truck traffic, on heavily traveled routes over certain city streets not on the State Highway System was causing rapid deterioration beyond the ability of the cities to repair. The State Highway Commission felt that in equity and justice some relief should be afforded to such towns and cities through the expenditure of funds derived from the gasoline and motor vehicle taxes. Accordingly, late in 1941 a program for the maintenance and repair of such streets was authorized. The sum authorized for this work for 1942 was $170,000. It was allotted to cities ranging in population from 250 to 50,000 on a basis of one-third according to population, one-third according to mileage of general use streets, and one-third according to volume of traffic on general use streets.

Contracts providing for state maintenance of designated city streets under the arrangement above described were entered into with 157 cities. Expenditures made during 1942, in accordance with those contracts, are expected to total about $160,000.

State Park Roads and Parking Areas

In order to avoid duplication of personnel and equipment, the Maintenance Department, beginning with the year 1941, assumed the maintenance of the roads and parking areas leading to and within State Highway parks. State parks were classified under three headings—Official State Parks, Minor Parks, and Roadside Development Areas. The Maintenance Depart-

ment was charged with the betterment and maintenance of park roads and parking areas in all three of the classifications and with all betterment and maintenance of buildings and grounds in the minor parks and roadside developments. Betterment and maintenance of buildings and grounds in official state parks is a function of the Parks Department. There are 73 official parks, 44 minor parks and 33 roadside development areas.

Equipment Department

Since 1932, the Equipment Department has operated as a part of the Maintenance Department. Equipment is furnished state forces at rental rates which cover depreciation, repair and maintenance costs. Equipment repair and storage shops are located at Salem, La Grande, Klamath Falls, and Coquille. Routine work covers the maintenance, repair and overhauling of state-owned equipment totaling 158 passenger cars, 702 trucks, 75 motor graders and several hundred other pieces of maintenance equipment including boilers, retorts, paving plants, etc. Stockrooms purchase and dispense supplies and parts.

During 1942, restrictions were placed on the sale of new equipment, and it is probable that new equipment will be unavailable for some time. As the Department's equipment becomes older, the burden on the repair shops will become greater. The order freezing new equipment also placed restrictions on the securing of replacement parts, thus adding further to the problem of keeping equipment in operating condition.

Much of the equipment used on the WPA construction of Wilson River and Wolf Creek was released by the shutdown of these projects. This type of equipment being in great demand for war construction, its rental for this use was arranged. The ceiling rental rates established by the War Production Board, Office of Price Administration, have been charged in all cases, thus eliminating the need for competitive bidding.

The Department participated wholeheartedly in the rubber salvage drive. Wornout tires and tubes in the amount of 28,000 pounds were donated to the drive and an additional 84,000 pounds were sold for reclamation. All possible measures have

been taken to cooperate in the conservation of tires. The use of cars in the transportation of employees has been drastically reduced and many of the Department's cars have been placed in temporary storage. The use of railroad and bus as a means of employee transportation has been increased; joint use of cars on trips has been organized; and low speed limits on vehicles, both cars and trucks, is being rigidly enforced. Special traveling equipment inspectors have been placed in the field to check up on compliance and to train equipment operators in proper tire care for conservation of rubber and in proper care and operation of the various pieces of equipment to prolong life and minimize repairs and replacements. Daily check of tire inflation is required on all vehicles. Equipment operated in dimout zones has been fitted properly for compliance with dimout regulations.

Mileage traveled during the third quarter of 1942 was reduced 38 per cent for passenger cars and 10 per cent for trucks over the same period last year.

Engineer Battalion

An engineer battalion composed of three companies totaling approximately 300 men was organized among maintenance employees in Western Oregon as a part of the Oregon State Guard for the performance of such duties as the War Department has requested for defense. Lieutenant-Colonel R. H. Baldock and Major C. B. McCullough are attached to the staff of Brigadier-General Ralph P. Cowgill, State Guard Commander. The commissioned officers of the battalion are as follows:

Major E. A. Collier, Commanding Officer,

1st Lieut. Ralph B. Sipprell, Adjutant.

COMPANY A

Captain Wayman C. Williams, Commanding Officer,
1st Lieutenant Lynn V. Koons,
1st Lieutenant Austin J. Ford,
1st Lieutenant William M. Strohmeyer.

COMPANY B

Captain Frederick D. Eason, Commanding Officer,
1st Lieutenant Frederick W. Farrar,
1st Lieutenant Russell M. Smith.

COMPANY C

Captain Kingsley D. Lytle, Commanding Officer,
1st Lieutenant Joseph G. Toole,
1st Lieutenant Delburt J. Sage,
1st Lieutenant James G. Bromley.

In addition to the engineer battalion, a transportation company was formed. This company numbers 80 men, of whom approximately 25 per cent are State Highway Department employees. It is under the command of Captain Ray P. Betzer of the Highway Department. Trucks for this company which furnishes transportation for the First Infantry Regiment, Oregon State Guard, are provided by the State Highway Department.

Cost Statements

Itemized statements showing the "per mile" costs of maintenance for both the primary and the secondary highway systems during each of the calendar years 1940 and 1941, and showing also the total mileage in each system maintained, appear in accompanying tables.

Maintenance operations were carried on under the supervision of the late J. N. Bishop, Maintenance Engineer, up to November 24, 1941. Subsequent to that time, these operations have been directed by E. A. Collier, Maintenance Engineer, assisted by Assistant Maintenance Engineers W. W. Stiffler, W. O. Widdows, and I. A. DeFrance.

TABLE XVI, MAINTENANCE TABLE "A"

Costs of Maintaining Primary State Highways

Calendar Year 1940

	General Maintenance Charges	Special Maintenance Charges	Total Maintenance Charges	Miles Maintained	Cost Per Mile
Surface					
Concrete pavement	$ 47,344.33	$	$ 47,344.33	322	$147
Asphaltic pavement					
(a) Patch and re-treat	138,884.33	.....	138,884.33	530	262
(b) Material stockpiles	.....	18,557.44	18,557.44	.....	.....
Bituminous macadam					
(a) Patch and re-treat	255,068.98	.....	255,068.98	1,116	229
(b) Material stockpiled	.....	92,031.84	92,031.84	.....	.....
Oiled macadam					
(a) Patch and re-treat	615,656.92	.....	615,656.92	2,244	274
(b) Material stockpiled	.....	203,003.38	203,003.38	.....	.....
Untreated macadam and graded					
(a) Blade and gravel	93,230.26	.....	93,230.26	505	185
Shoulders					
Patching and re-treating	87,354.75	.....	87,354.75	.....	.....
Blading and sodding	51,090.63	.....	51,090.63	.....	.....
Sidewalks and footpaths	1,515.01	.....	1,515.01	.....	.....
Drainage					
Ditches	175,030.58	.....	175,030.58	.....	.....
Drains and drainage tunnels	8,614.11	.....	8,614.11	.....	.....
Culvert cleaning	14,203.10	.....	14,203.10	.....	.....
Structures					
Bridges under 20′	17,604.74	.....	17,604.74	.....	.....
Bridges 20′ and over	155,231.37	695.62	155,926.99	.....	.....
Guard fence and sight posts	41,487.75	.....	41,487.75	.....	.....
Pipe culverts	6,660.18	.....	6,660.18	.....	.....
Roadway tunnels	179.74	.....	179.74	.....	.....
Roadside					
Removing weeds and brush	155,353.12	.....	155,353.12	.....	.....
Removal of debris	36,207.79	.....	36,207.79	.....	.....
Highway beautification	17,621.68	.....	17,621.68	.....	.....
Slide removal	78,489.80	.....	78,489.80	.....	.....
Fills, replace and widen	49,993.48	.....	49,993.48	.....	.....
Right of way fence	280.49	.....	280.49	.....	.....
Right of way markers	18.66	.....	18.66	.....	.....
Seeding and planting slopes	397.24	.....	397.24	.....	.....
Road approaches	12,290.57	.....	12,290.57	.....	.....
Traffic Service					
Traffic signals	4,401.30	.....	4,401.30	.....	.....
Signs and highway markers	63,952.87	.....	63,952.87	.....	.....
Traffic lines	103,739.05	.....	103,739.05	.....	.....
Snow removal	152,987.95	.....	152,987.95	.....	.....
Mile posts	364.88	.....	364.88	.....	.....
Sanding icy pavements	39,131.27	.....	39,131.27	.....	.....
Flagging, towing, etc.	2,536.97	.....	2,536.97	.....	.....
Highway illumination	7,488.02	.....	7,488.02	.....	.....
Operation of road magnet	5,016.75	.....	5,016.75	.....	.....
Traffic islands	72.41	.....	72.41	.....	.....
Supervision	77,807.22	.....	77,807.22	.....	.....
Totals	$2,517,308.30	$ 314,288.28	$2,831,596.58	4,717	$534

TABLE XVII, MAINTENANCE TABLE "B"

Costs of Maintaining Primary State Highways

Calendar Year 1941

	General Maintenance Charges	Special Maintenance Charges	Total Maintenance Charges	Miles Maintained	Cost Per Mile
Surface					
Concrete pavement	$ 47,841.10	$	$ 47,841.10	325	$147
Asphaltic pavement					
(a) Patch and re-treat	143,436.00	.....	143,436.00	527	272
(b) Material stockpiled	.....	31,815.22	31,815.22	.....	.....
Bituminous macadam					
(a) Patch and re-treat	376,546.42	.....	376,546.42	1,122	336
(b) Material stockpiled	.....	90,726.79	90,726.79	.....	.....
Oiled macadam					
(a) Patch and re-treat	679,090.49	.....	679,090.49	2,367	287
(b) Material stockpiled	.....	242,369.40	242,369.40	.....	.....
Untreated macadam and graded					
(a) Blade and gravel	68,825.03	.....	68,825.03	419	164
Base and subbase repairs	2,578.64	.....	2,578.64	.....	.....
Shoulders					
Patching and re-treating	93,675.55	.....	93,675.55	.....	.....
Blading and sodding	57,413.37	.....	57,413.37	.....	.....
Sidewalks and footpaths	1,954.12	.....	1,954.12	.....	.....
Drainage					
Ditches	175,922.65	.....	175,922.65	.....	.....
Drains and drainage tunnels	8,775.28	.....	8,775.28	.....	.....
Culvert cleaning	12,650.41	.....	12,650.41	.....	.....
Flumes	2.20	.....	2.20	.....	.....
Structures					
Bridges under 20′	18,918.39	.....	18,918.39	.....	.....
Bridges 20′ and over	206,121.37	7,532.35	213,653.72	.....	.....
Guard fence and sight posts	52,551.78	.....	52,551.78	.....	.....
Pipe culverts	4,210.96	.....	4,210.96	.....	.....
Roadway tunnels	953.59	.....	953.59	.....	.....
Roadside					
Removing weeds and brush	183,645.77	.....	183,645.77	.....	.....
Removal of debris	46,305.87	.....	46,305.87	.....	.....
Highway beautification	27,089.32	.....	27,089.32	.....	.....
Slide removal	70,085.06	.....	70,085.06	.....	.....
Fills, replace and widen	48,783.90	.....	48,783.90	.....	.....
Right of way fence	499.42	.....	499.42	.....	.....
Right of way markers	143.26	.....	143.26	.....	.....
Seeding and planting slopes	336.50	.....	336.50	.....	.....
Road approaches	18,140.79	.....	18,140.79	.....	.....
Traffic Service					
Traffic signals	4,700.48	.....	4,700.48	.....	.....
Signs and highway markers	62,100.25	.....	62,100.25	.....	.....
Traffic lines	125,928.99	.....	125,928.99	.....	.....
Snow removal	138,817.61	.....	138,817.61	.....	.....
Mile posts	726.71	.....	726.71	.....	.....
Sanding icy pavements	45,045.43	.....	45,045.43	.....	.....
Flagging, towing, etc.	3,080.31	.....	3,080.31	.....	.....
Highway illumination	8,541.99	.....	8,541.99	.....	.....
Operation of road magnet	4,481.14	.....	4,481.14	.....	.....
Traffic islands	412.23	.....	412.23	.....	.....
Supervision	82,914.77	.....	82,914.77	.....	.....
Totals	$2,823,247.15	$ 372,443.76	$3,195,690.91	4,760	$593

TABLE XVIII, MAINTENANCE TABLE "C"

Costs of Maintaining Secondary State Highways

Calendar Year 1940

	General Maintenance Charges	Special Maintenance Charges	Total Maintenance Charges	Miles Maintained	Cost Per Mile
Surface					
Concrete pavement	$ 5,522.75	$	$ 5,522.75	46	$120
Asphaltic pavement	24,034.49	.....	24,034.49	134	179
Bituminous macadam					
(a) Patch and re-treat	3,728.22	.....	3,728.22	41	91
Oiled macadam					
(a) Patch and re-treat	156,655.14	.....	156,655.14	727	215
(b) Material stockpiled	.....	35,446.07	35,446.07	.....	.....
Untreated macadam and graded					
(a) Blade and gravel	198,820.10	.....	198,820.10	1,360	146
Shoulders					
Patching and re-treating	7,773.97	.....	7,773.97	.....	.....
Blading and sodding	7,234.28	.....	7,234.28	.....	.....
Sidewalks and footpaths	82.67	.....	82.67	.....	.....
Drainage					
Ditches	44,285.09	.....	44,285.09	.....	.....
Drains and drainage tunnels	5,468.98	.....	5,468.98	.....	.....
Culvert cleaning	5,377.30	.....	5,377.30	.....	.....
Structures					
Bridges under 20′	7,850.26	6,693.69	14,543.95	.....	.....
Bridges 20′ and over	80,376.29	.....	80,376.29	.....	.....
Guard fence and sight posts	4,991.67	.....	4,991.67	.....	.....
Pipe culverts	2,796.61	.....	2,796.61	.....	.....
Roadway tunnels	23.58	.....	23.58	.....	.....
Roadside					
Removing weeds and brush	38,230.70	.....	38,230.70	.....	.....
Removal of debris	6,813.86	.....	6,813.86	.....	.....
Highway beautification	917.64	.....	917.64	.....	.....
Slide removal	19,007.06	.....	19,007.06	.....	.....
Fills, replace and widen	10,515.77	.....	10,515.77	.....	.....
Right of way fence	93.01	.....	93.01	.....	.....
Right of way markers	5.97	.....	5.97	.....	.....
Seeding and planting slopes	15.55	.....	15.55	.....	.....
Road approaches	3,034.22	.....	3,034.22	.....	.....
Traffic Service					
Traffic signals	60.01	.....	60.01	.....	.....
Signs and highway markers	13,628.11	.....	13,628.11	.....	.....
Traffic lines	11,610.18	.....	11,610.18	.....	.....
Snow removal	23,282.94	.....	23,282.94	.....	.....
Sanding icy pavements	2,335.96	.....	2,335.96	.....	.....
Flagging, towing, etc.	782.20	.....	782.20	.....	.....
Highway illumination	497.50	.....	497.50	.....	.....
Operation of road magnet	1,941.95	.....	1,941.95	.....	.....
Supervision	21,937.00	.....	21,937.00	.....	.....
Totals	$ 709,731.03	$ 42,139.76	$ 751,870.79	2,308	$326

TABLE XIX, MAINTENANCE TABLE "D"

Costs of Maintaining Secondary State Highways

Calendar Year 1941

	General Maintenance Charges	Special Maintenance Charges	Total Maintenance Charges	Miles Maintained	Cost Per Mile
Surface					
Concrete pavement	$ 8,507.24	$	$ 8,507.24	54	$158
Asphaltic pavement					
(a) Patch and re-treat	17,499.17	.....	17,499.17	133	132
(b) Material stockpiled	.....	7,239.96	7,239.96	.....	.....
Bituminous macadam					
(a) Patch and re-treat	8,262.65	.....	8,262.65	48	172
Oiled macadam					
(a) Patch and re-treat	215,540.39	.....	215,540.39	939	230
(b) Material stockpiled	.....	42,643.19	42,643.19	.....	.....
Untreated macadam and graded					
(a) Blade and gravel	168,747.75	.....	168,747.75	1,175	144
(b) Material stockpiled	.....	482.72	482.72	.....	.....
Base and subbase repairs	2,157.06	.....	2,157.06	.....	.....
Shoulders					
Patching and re-treating	11,640.21	.....	11,640.21	.....	.....
Blading and sodding	8,021.36	.....	8,021.36	.....	.....
Sidewalks and footpaths	190.27	.....	190.27	.....	.....
Drainage					
Ditches	46,511.45	.....	46,511.45	.....	.....
Drains and drainage tunnels	3,663.94	.....	3,663.94	.....	.....
Culvert cleaning	5,057.23	.....	5,057.23	.....	.....
Structures					
Bridges under 20′	14,927.70	496.82	15,424.52	.....	.....
Bridges 20′ and over	74,891.29	6,809.25	81,700.54	.....	.....
Guard fence and sight posts	5,233.24	.....	5,233.24	.....	.....
Pipe culverts	3,367.52	.....	3,367.52	.....	.....
Roadway tunnels	4,416.65	.....	4,416.65	.....	.....
Roadside					
Removing weeds and brush	50,082.45	.....	50,082.45	.....	.....
Removal of debris	9,673.49	.....	9,673.49	.....	.....
Highway beautification	931.50	.....	931.50	.....	.....
Slide removal	15,873.90	.....	15,873.90	.....	.....
Fills, replace and widen	6,224.28	.....	6,224.28	.....	.....
Right of way fence	297.43	.....	297.43	.....	.....
Road approaches	3,498.93	.....	3,498.93	.....	.....
Traffic Service					
Traffic signals	47.71	.....	47.71	.....	.....
Signs and highway markers	19,575.09	.....	19,575.09	.....	.....
Traffic lines	26,173.01	.....	26,173.01	.....	.....
Snow removal	24,129.17	.....	24,129.17	.....	.....
Sanding icy pavements	2,565.63	.....	2,565.63	.....	.....
Flagging, towing, etc.	935.69	.....	935.69	.....	.....
Highway illumination	75.86	.....	75.86	.....	.....
Operation of road magnet	1,627.55	.....	1,627.55	.....	.....
Traffic islands	13.60	.....	13.60	.....	.....
Supervision	23,386.22	.....	23,386.22	.....	.....
Totals	$ 783,746.63	$ 57,671.94	$ 841,418.57	2,349	$334

TABLE XX

Expenditures for Minor Betterments on Primary Highways

Calendar Years 1940 and 1941

Item	Calendar Year 1940	Calendar Year 1941
Surface:		
Concrete pavement	$	$ 2,533.88
Asphalt pavement	11,128.15	7,350.56
Bituminous macadam	.....	996.56
Oiled macadam	27,816.38	12,116.36
Untreated macadam	5,167.11	.....
Base and subbase	30.00	230.70
Road mix treatment	.....	303.16
Shoulders:		
Patching and re-treating	26,080.64	9,993.72
Sidewalks and footpaths	2,294.61	20,961.39
Drainage:		
Ditches	2,432.60	5,202.91
Drains and drainage tunnels	9,417.65	19,939.62
Structures:		
Box culverts and bridges under 20 feet	22,949.29	16,171.79
Bridges over 20 feet in length	25,768.44	22,089.05
Guard fences and sight posts	21,201.15	27,783.12
Pipe culverts	32,101.27	26,092.40
Roadway tunnels	.....	3,224.61
Roadside:		
Removing danger trees, etc.	863.20	2,288.39
Highway beautification	1,166.10	2,980.12
Slide removal and cut sloping	1,816.18	3,245.82
Embankment replacement and widening	16,429.32	7,445.25
Right of way fence	40.32	125.43
Right of way markers	1,207.03	442.02
Seeding and planting for slope protection	355.99	6.20
Road approaches	9,276.62	31,170.70
Traffic Service:		
Traffic signals	13,397.82	19,764.31
Signs and highway markers	305.09	5,464.87
Traffic lines	141.37	.....
Snow fence	2,633.32	1,798.22
Highway illumination	354.10	464.28
Mile posts	535.83	329.12
Traffic islands	.....	3,629.84
Totals	$ 234,909.58	$ 254,144.40

TABLE XXI

Expenditures for Minor Betterments on Secondary Highways

Calendar Years 1940 and 1941

Item	Calendar Year 1940	Calendar Year 1941
Surface:		
Concrete pavement	$	$ 26,272.71
Asphalt pavement	9,091.77	984.32
Bituminous macadam	.....	.....
Oiled macadam	31,920.44	9,244.32
Untreated macadam	1,034.03	13,503.78
Base and subbase	3,477.69	.....
Shoulders:		
Patching and re-treating	2,878.11	3,325.12
Sidewalks and footpaths	6.63	1,832.52
Drainage:		
Ditches	.....	889.76
Drains and drainage tunnels	2,632.38	1,929.82
Structures:		
Box culverts and bridges under 20 feet	8,924.09	7,620.89
Bridges over 20 feet in length	8,257.54	18,919.96
Guard fences and sight posts	2,989.80	3,961.68
Pipe culverts	13,399.10	18,305.04
Roadside:		
Removing danger trees, etc.	486.44	249.60
Highway beautification	293.19	.....
Slide removal and cut sloping	1,379.24	1,611.08
Embankment replacement and widening	8,676.70	9,321.36
Right of way fence	.....	.....
Right of way markers	.....	.....
Seeding and planting for slope protection	54.15	.....
Road approaches	3,426.53	7,480.83
Traffic Service:		
Traffic signals	267.46	.....
Signs and highway markers	14.51	.....
Traffic lines	.....	.....
Snow fence	732.04	714.05
Highway illumination	34.42	.....
Totals	$ 99,977.16	$ 126,166.84

TRAFFIC CONGESTION AT EXIT FROM OREGON SHIPBUILDING CORPORATION YARD IN NORTH PORTLAND

TRAFFIC SIGNAL INSTALLATION IN KLAMATH FALLS USING OVERHEAD SIGNALS FOR VEHICULAR TRAFFIC AND CORNER SIGNALS FOR PEDESTRIAN TRAFFIC

REPORT OF TRAFFIC ENGINEERING DIVISION

JOHN BEAKEY, *Traffic Engineer*

As described in previous biennial reports of the Department, the principal duties of the Traffic Engineering Division relate to the facilitation of highway movement and the safety of highway users. The Division has continued to handle the continuing or permanent phases of the State-wide Highway Planning Survey inaugurated in 1936, and more fully described in the Thirteenth Biennial Report.

While the war has created much more work for the Traffic Engineering Division, it has also made great inroads on its personnel so that much of the work normally done by the Division has had to be curtailed and some has had to be eliminated entirely. Many former employees have entered the military service, while others are employed in war industries where they have been attracted by the higher salaries paid. Women are now employed in many jobs formerly occupied by men.

During the past biennium, and particularly since Pearl Harbor, the Division has had considerable work to do in connection with access roads and traffic congestion adjacent to new and expanded military establishments and shipyards and other war industries. Most important among these are Camp White, near Medford; Camp Adair, near Corvallis; and the Oregon and Swan Island shipyards in Portland. The construction of the two Army camps necessitated the employment of several thousand workmen in each instance, most of whom arrived in some type of motor vehicle. As may be surmised, this sudden influx of motor vehicles created many traffic problems in the respective communities. It was necessary to construct new highways and to rebuild existing ones to carry the military traffic after the camps were completed. Many of the problems incident to the proper location and the geometric design of these new and improved facilities were handled by the Traffic Engineering Division.

Both the Oregon and the Swan Island shipyards, operated by the Kaiser interests, are located on the Willamette river in Portland. Each now employs approximately 30,000 persons

and, as may be expected, getting these employees to and from work has created traffic "headaches" for all concerned including officials of the city and state, the mass transportation companies and the shipyards. Both yards are located where existing street facilities were originally designed for much smaller volumes of vehicular traffic than those developed by the shipyards. This necessitated the widening and improvement of several streets, the construction of new ones, the re-routing of traffic and a general rearrangement of traffic control devices.

The congestion in and around Portland was further complicated by a third large Kaiser shipyard in Vancouver, immediately across the Columbia river from Portland. Many of the employees of the latter yard live in Portland and drive back and forth each day. In addition to the three large shipyards in the Portland area, there are several smaller ones, as well as numerous other war industries. It is estimated that the population of Portland has increased about 100,000 persons since the 1940 census, or approximately 33⅓ per cent.

As a result of bills introduced in the 1941 legislature authorizing the construction of additional bridges across the Columbia river at various points, the States of Washington and Oregon initiated a joint survey to determine the necessity for such additional structures and the locations at which they should be constructed, if found to be necessary. The Traffic Engineering Divisions of the two states were entrusted with the job of ascertaining the volumes of traffic now carried by the several existing bridges and ferries on the Columbia river, its origin and destination; also, to estimate the traffic that might be generated if additional facilities were provided. The survey methods finally devised to obtain this information necessitated the establishment of a number of observation stations on both sides of the Columbia, and for some distance back from the river on both sides. It was originally planned to observe traffic at these stations at several different times throughout a full year but, with the entry of the United States into the war, it was decided to defer this part of the field work. However, before this decision was made traffic observations for two separate observation periods had been taken. The results

of the data obtained in the field are now being analyzed and will be reported in detail in a publication to be issued later. It is anticipated that additional field data will be gathered after the war.

Because of difficulty in obtaining materials, it has not been possible to install as many traffic signals as conditions have warranted, or would have warranted, had traffic volumes remained normal. However, one traffic signal project completed since publication of the last biennial report is worthy of comment because the method of installation differs from that used heretofore. This project was in the city of Klamath Falls and involved eight intersections. It was a co-operative project between the city and the state, with the State Highway Department having supervision over the work. Instead of using the single center-suspended four-way type of signal or the four-corner, two-way, ninety-degree type of installation, three-color signals to control vehicular traffic were hung overhead on each side of the intersection and walk-wait signals to control pedestrian traffic were installed on the corners. This type of installation permits separate timing of the two types of signals and separates the signals so that pedestrians are not confused by the vehicular signals, as is the case when both signals are mounted on the same post. The system has been found to be successful and additional installations of this type have since been made on Union Avenue in Portland as a co-operative project between the city and the state.

Another signal installation worthy of comment is that at the intersection of US 99W and US 99E at the south end of the Columbia River bridge north of Portland. This installation included considerable channelization. The intersection has always carried very heavy traffic and the volume has been greatly increased by the construction of the shipyard at Vancouver. Even with the installation of the signals and the channelization, there is congestion at this intersection during rush hours. Without the signals, the present rush hour traffic could not be handled through the intersection at all.

The accident analysis described in the Fourteenth Biennial Report of the Commission has been continued, but unfortu-

nately it has not been possible to utilize it constructively as the construction work involved in the highway and street revisions and changes shown by the accident analysis to be necessary must be deferred until after the war.

The regularly scheduled state-wide traffic counts described in the Fourteenth Biennial Report were continued throughout 1941 at about 105 stations. However, in 1942 the schedule was curtailed to eliminate all counts, except those in February, May, August, and November. Counts for those months were continued, approximately one-half of the stations being counted for a 24-hour weekday, a 24-hour Saturday and a 24-hour Sunday in each of the four months named, and the other one-half of the stations being counted for a 24-hour weekday only in each of the four months.

In addition to these counts, numerous special counts have been made of both vehicles and pedestrians in connection with individual investigations and surveys. Most of these special counts have been in connection with access roads and traffic service adjacent to military establishments and war industries.

JUNIPER GROWTH ON CENTRAL OREGON HIGHWAY BEING PRESERVED BY AGREEMENT WITH FEDERAL GOVERNMENT

REPORT OF THE LEGAL AND RIGHT OF WAY DEPARTMENTS

J. M. DEVERS, *Chief Counsel*

This report, being a biennial report, covers the period beginning with July 1, 1940, and ending with June 30, 1942. During more than one-fourth of the time covered by the report the United States has been involved in a global war. That means that war emergencies and consequent priority rulings and other governmental controls have been imposed upon all of the states. Oregon has been called upon with the other states to yield to defense needs. The normal business of the state, both private and public, has been seriously impaired and interrupted and the Oregon highway system has suffered along with other activities and institutions.

Notwithstanding the impairment and interruption which has been forced on the Highway Commission and therefore on the highway program the work of building and maintaining highways has gone forward with some degree of success but with a lesser degree of satisfaction on the part of the Highway Department. A biennial report under existing conditions will necessarily reflect the results of the unfavorable conditions which prevail because of World War II.

Both the Legal Department and the Right of Way Department are under the general supervision of J. M. Devers, as Chief Counsel to the Highway Commission, with J. W. DeSouza, Assistant Attorney, in charge of the Right of Way or Land Division.

The legal staff consists of J. M. Devers, Chief Counsel; J. W. DeSouza, Assistant Attorney; I. M. Schannep, Title Examiner; Robert W. DeArmond, Office Attorney; Pauline Welch, Secretary to the Chief Counsel; and Anona Welch, Secretary to the Assistant Attorney. Mr. W. A. Martin, who formerly was a member of the legal staff, is now with the Federal Government and Robert W. DeArmond has taken his place with the Highway Department.

The Right of Way or Land Division consists of A. B. Kneass, Real Property Office Man; W. J. Minkiewitz and Esthel Ben-

ner, Assistant Real Property Office Men; C. W. Parker, Land Appraiser; M. D. McCallister, H. G. Benson, W. F. Collins, W. S. McChesney, William H. Witt, Ray Landon and R. W. Cozad, Right of Way Agents; Cecil Knox, Florence Carter, Thelma Taylor, Gladys Morgali, and Gladys Cruzen, Stenographers.

During the biennium covered by this report the Department has been interested in 130 condemnation actions involving real property acquisitions of which number 87 have been settled either through agreement or trial. The Department has also been interested in 18 miscellaneous cases, in a few of which the Highway Department was named as defendant, and 9 of said cases have been terminated satisfactorily so far as the Highway Department is concerned.

In addition to the litigation handled by the Legal Department more than 150 contracts, leases, etc. have been prepared, and 249 construction contracts have been examined and passed upon as to form and other legal features.

During the same period these Departments have completed transactions involving the acquisition of 2,229 parcels of real property, of which 1,762 were for right of way and the others were for various uses including State parks. The sum of $1,948,371.81 was disbursed from the highway fund in connection with the purchase or acquisition of the several parcels of real property.

It might be thought that owing to the war, and the accompanying great national decrease in civilian activities, the work of the Legal and Right of Way Departments of the commission would reflect a corresponding decrease, but such has not been the case. Excluding expenditures for the Front Avenue Project in Portland, the volume of business transacted by the Right of Way Department and the amount of money expended for land acquisition during the first half of 1942 have been far greater than for any other corresponding period. This has been occasioned by the numerous access roads given emergency rating by the Federal Government. How much more work of this nature will develop in the future is problematical, but it appears likely that the peak load has passed.

A new activity in which the Highway Commission has been asked by the Federal Government to cooperate as a defense agency is the acquisition and development of emergency landing fields for aircraft. A project of that type, so far as the acquisition of real property is concerned, consists of two main features; namely, the area which is to be utilized for the landing and taking off of planes and the slope areas adjoining that area. With respect to the area employed for the landing and taking off of planes fee title is taken, but with respect to the slope areas only an easement is required. The acquisition of the area to which fee title is taken has not proved much of a problem, but because of the newness of the use to which the other areas are to be put much pioneer work has had to be done in the preparation of the necessary papers or easement documents. A form of document has been prepared which has been given approval by the Public Roads Administration and has also been given approval by the Committee on Legal Affairs at the recent convention of the American Association of State Highway Officials.

Finding a measure of value by which to determine the amount of compensation to be paid for the slope area easement presented a problem. However, the method arrived at, and which thus far seems to be working with satisfaction to the property owners and to the State, is to determine the reasonable cash market value per acre of the land over which the flight easement is to be given and then determine the percentage of depreciation which the land will sustain in value by reason of the slope area easement. With that factor of percentage depreciation we can easily then determine the amount of money to be paid the property owner.

HIGHWAY DIVISION OFFICE BUILDING IN SOUTHEAST PORTLAND
CONSTRUCTED MAINLY BY WPA FORCES

NEW REINFORCED CONCRETE HIGHWAY LABORATORY
BUILDING AT SALEM

REPORT OF MATERIALS DEPARTMENT

N. M. FINKBINER, *Engineer of Materials*

The Materials Department is charged with the testing of materials used in construction and maintenance; the setting of all mixes, both bituminous and concrete, and their inspection in the field; the field inspection of certain manufactured products; and research projects which fall within the scope of a laboratory.

The total number of samples tested and material inspections made during the 1939-1940 biennium was 24,588. The total for the 1941-1942 biennium was 26,163. This slight increase occurred in spite of the curtailment of the normal construction program in the state during the war year of 1942.

Materials which must pass laboratory test and/or inspection for specified quality are: asphalts (cements, cutbacks, and emulsions), bituminous mixtures, buttons used in reflectorized road signs, cement, concrete cylinders, creosote, expansion joint fillers, ferrous and nonferrous metals and alloys, filler, gravel, guardrail cable and posts, lumber and piling (green and treated), oil (for lubricating machinery), paints and lacquers and their ingredients, pipe (concrete, and plain and dipped galvanized iron), road oil, rock, sand, and soil.

The Materials Department maintains an inspector at each plant producing mixtures for paving contracts. His duties are to make certain that the mixtures delivered to the construction project are in compliance with the specifications for that project. A checker or checkers as the case may be, depending on the output of the plant, are assigned as assistants to the plant inspector. These checkers screen aggregates and check the weights of the ingredients in the mix.

A branch inspection office is maintained at the division headquarters in Portland, for the purpose of making inspections of culvert pipe and treated and untreated timber, and of sampling products such as paints and lacquers, tar, road oil, cement, and other materials which are stored or fabricated in the metropolitan district.

The laboratory research department functioned during only a portion of the biennium. After the declaration of war, it was decided to start no new research projects, holding such activities in abeyance until hostilities had terminated. However, certain projects were completed during the first year of the biennium. A series of tests on the formation of ice lenses under bituminous surfaces was made to discover what soil or filler characteristics aided the formation of these lenses which frequently cause frost upheavals in roadway surfaces. A series of rollers made by filling steel tubing with extra-strength concrete were made and tested for the bridge department. A series of Los Angeles abrasion tests were run on rock and gravel to see if the specified requirements should be the same for both of these kinds of aggregates. Some work was done on the effect of alkali on the expansion of mortars, and some work was also done on the correlation of laboratory tests on concrete beams and cylinders with field research on concrete pavement. Investigations into the causes of the hardening of asphaltic cements, and their rates of hardening, have not been completed.

In December 1940, the Commission opened bids for the new Engineering Laboratories building to provide room for the constantly expanding laboratory. For eleven years, the laboratories had been in the basement of the Agricultural building. During that time, growing demands for testing of all kinds had resulted in a condition of crowding which was interfering seriously with effective operation. The contract for the new building was let to B. F. James, the low bidder, for $89,600. Construction started in January of 1941, and the building was occupied in November of the same year. The building is of reinforced concrete construction with all partitions on the lower floor either concrete or hollow tile. The new quarters have increased the efficiency of the laboratory by providing more commodious facilities and a much more satisfactory place in which to work. The new plant, although not the largest, is undoubtedly the best on the Pacific Coast.

Of the eighteen full-time employees on the pay roll December 1, 1941, nine have left for other services. Seven have been

accepted as officers in the army and navy, one was drafted, and one accepted employment as a specialist in a shipbuilding plant.

Mr. G. W. Harra is assistant Engineer of Materials, and Mr. C. F. Hagemann is office manager.

HIGHWAY DIVISION OFFICE BUILDING AT BEND

CROOKED RIVER GORGE WITHIN THE COVE PALISADES STATE PARK
EMBRACING 8,000 ACRES IN JEFFERSON COUNTY

REPORT OF STATE PARKS DEPARTMENT

SAMUEL H. BOARDMAN, *State Parks Superintendent*

Due to the incidence of the world-wide crisis, there has been a decline in the attendance at Oregon's state parks. This decline began early in the present biennium, and became more pronounced as the recreational season of 1941 advanced. Still further decline was noted throughout 1942 when necessary restrictions on travel became effective.

Following is the estimated record of attendance for the last three years, with numbers for November and December, 1942, approximated:

State-wide Parks

1940—Persons, 2,070,238.
1941—Persons, 1,781,104; 14 per cent less than 1940.
1942—Persons, 566,356; 68 per cent less than 1941.

Lincoln County Parks

1940—Persons, 1,182,795.
1941—Persons, 866,352; 27 per cent less than 1940.
1942—Persons, 134,832; 84 per cent less than 1941.

Silver Creek Falls Park

1940—Persons, 200,238.
1941—Persons, 161,024; 20 per cent less than 1940.
1942—Persons, 74,404; 54 per cent less than 1941.

The above tabulation indicates the decrease in park attendance during this biennium period and probably forecasts a further decline for a time in the future.

The completion and opening of the Wolf Creek highway brought a closely estimated 156,825 persons to Ecola park in 1941, an increase of 56,745 or 36 per cent over the previous year. In 1942, the attendance was down to 24,156, a decrease of 132,669, or 84 per cent from the 1941 figure. This decline was greater than the general recession in coast visitations, without any apparent reason, as defense regulations did not prevent the general usage of this park.

Bradley park, at Clatsop Crest on the lower Columbia River Highway was closed to the public in January 1942, it being the first park casualty. Military occupation closed some of the coast parks to any but defense organizations. In other parks along the coast there were minor restrictions, but for the most part the parks were open to the public at all times, and visitors came and went without hindrance.

Speed restrictions, tire shortages, dim-out and black-out regulations on the seashore, and in some places on the coast highway, may have affected travel to the coast parks to some extent, but the effect was more likely due to a psychological change in the attitude of the people whose efforts were concentrated on their wartime occupations, and to their giving serious consideration to the prevailing, and much emphasized, need of economy in car usage.

Silver Creek Falls park still holds its supremacy as Oregon's foremost state park and maintained a higher ratio of attendance during the biennium than any of the others. Its accessibility, picturesque canyon trails, beautiful waterfalls, ample and well-cared-for grounds, commodious parking spaces and adequate picnicking facilities for both individual parties or organized groups, have given it a very definite place in the minds of the surrounding populace, and have made it an institution of merit.

The long-planned opening of the concession building at this park was postponed because of the existing emergency, and will be further held in abeyance until conditions are fully stabilized. The building is completed, the furniture is in place, the culinary equipment is installed, and everything is in readiness for the operation of the concession whenever circumstances will permit.

In general, the activities of the Parks Department during 1941 and 1942 were of a slower tempo that graduated downward with the ascending scale of war production, which began its rise in the early months of the report period.

Parks development was very adversely affected by the suspension of the CCC camps that had recently been active in

state park work. The periods of activity of these camps and the months of their closing follow:

SP- 9—Silver Creek Falls, 3 periods, closed August 1942.
SP-10—Woahink Lake, ½ period, closed August 1941.
SP-11—Saddle Mountain, 1 period, closed August 1941.
SP-18—Short Sand Beach, 2 periods, closed October 1941.
MA-1—Cape Arago (side camp), ½ period, closed October 1941.

The sudden closing of the Silver Creek CCC camp, after seven years of continuous operation, disrupted the planned work program, leaving the community shelter building, other minor structures and the parking area uncompleted. At Short Sand Beach, the camp, erected in 1940, operated only two full periods. The work accomplished was the clearing of an extensive picnic area adjacent to the highway between Short Sand creek and Necarney creek, and the clearing of the wayside for half the distance between Short Sand creek and the Arch Cape tunnel. A foot trail intended to reach to the end of Cape Falcon was about half completed. Parking places at both ends of the highway bridge over Short Sand creek and a park water system were under construction when the camp was closed and were finished by state force account crews.

The CCC work program at Saddle Mountain and the work being carried on by the Woahink Lake Camp in the Jessie M. Honeyman Memorial State park were practically completed when the camps were closed, as was the work being done at Cape Arago by a side camp crew from the Charleston CCC camp.

One two-man traveling repair and construction crew was employed during 1941, repairing buildings and fixtures, installing water supply lines and performing other similar work. In January 1942 this crew was called in and laid off. An extra trail crew was also recalled at the same time. During 1942, at the request of the Parks Department, Bridge Department engineers made an examination of the Crown Point Vista House and recommended rather extensive, and much-needed, repairs. The work, paid for from Parks Department funds, was

contracted and supervised by Bridge Department personnel. Among other things, were repairs to the leaking roof and repairs to exclude the severe east winds which had been making the building almost untenable.

At the Honeyman park, the bathhouse was not formally opened, nor any life guard appointed, for the 1942 bathing season.

Acquisition of Park Property

During this biennium there has been a continuation of the orderly acquisition of lands for recreational and scenic purposes. The most notable acquisition was Cascadia park on the South Santiam river, a beautiful park occupying an area of 321 acres, lying on both sides of the river and adjoining the highway. It includes within its boundaries several famous mineral springs, the waters of which have been celebrated for their health-giving properties for nearly 75 years.

To consolidate the Cove Palisades Park area on the Crooked and Deschutes rivers, 1,543 acres were purchased. With this added tract and with leaseholds from the United States, through the Department of Agriculture and Department of the Interior, this park area now aggregates 7,006 acres of volcanized wonderland, including a famous fishing area.

Valuable additions were made to the Umpqua Lighthouse park, which included a gift of 200 acres from Douglas County, 1,098 acres purchased from the United States Government, and 184 acres purchased from two individual owners. To the picturesque Short Sand Beach park, 484 acres were added through purchase. Of this, 354 acres are forest land which carries some splendid veteran specimens of spruce which are of great potential esthetic value. In several parcels, 204 acres of primeval forest was added to the beautiful Van Duzer Forest Corridor along the Salmon River Highway. There is little doubt but that, if the State had not acquired this "corridor" of forest, the entire area would, by this time, have been a waste of cut-over land. Other purchases, with forest wayside gifts of 430 acres from Josephine County, brought the total of new park and wayside areas acquired during this biennium to 4,963 acres.

Subsequent to June 30, 1942, an agreement has been entered into between the Grazing Service of the Department of the Interior and the State Highway Commission, whereby certain strips of Juniper forest, "lying parallel and adjacent to the right of way of the Sisters-Redmond Section of the McKenzie Highway and the Redmond-Prineville Section of the Ochoco Highway, and for a width of 1,320 feet on each side of said highways," are to be mutually controlled "in the interests of the general public". A like agreement, covering similar lands of the same width along the Horse Ridge-Bend Section of the Central Oregon Highway, was executed in March 1942. Both agreements are on a year-to-year basis and prohibit the cutting of trees and the placing of advertising signs within the designated areas. The executing of these agreements is an important forward step in preserving to posterity these areas of the very best in quantity and quality of Oregon's picturesque, gray-green juniper tree forests which have such a strong appeal to everyone who travels the desert ways which they adorn.

WAYSIDE PARKING DEVELOPMENT AT TUB SPRINGS ON GREEN SPRINGS HIGHWAY EAST OF ASHLAND

REPORT OF TRAVEL AND INFORMATION DEPARTMENT

OSCAR CUTLER, *Acting Director*

In 1935, the Oregon State Highway Commission established a Travel and Information Department in order to publicize to the world Oregon's scenic and recreational attractions, with the particular purpose in view of attracting motorists to Oregon, with the hope that gasoline tax revenues for the construction and maintenance of highways would thereby be increased; also, with the expectation that many of the tourists visiting the state would return to make Oregon their home.

The Department has now functioned for seven years, and during that time expenditures and efforts to advertise the state's scenic attractions have repaid the expenditures made many times over. During the last two years, due to defense activities, and for the last several months, under actual war conditions, tourist traffic has suffered. No attempt was made to estimate the number of tourists entering the state in 1942, but for the year 1941 it is estimated that the total number of tourists entering in motor cars was approximately 800,000, and that the expenditures from all classes of tourist traffic were approximately $51,000,000. For the year 1940, which was the last year when figures were available based on foreign car registrations and inquiries, the following figures were arrived at: 1. Average number of days of stay in the state per car, 8.6. 2. Expenditure per day per person, $3.71. 3. Expenditure per person per stay in the state, $31.91. 4. Expenditure per car per stay, $95.73. 5. Average number of miles traveled in state per vehicle, 896.

The year 1940 saw many people entering the state who came to the west coast to attend the Golden Gate Fair at San Francisco, and who as a part of their trip traveled through the Pacific Northwest. For the year 1941 tourist traffic and other out-of-state traffic came to Oregon in large measure due to the advertising conducted at the world fair and to the advertising campaign conducted in newspapers, magazines, and by motion pictures.

"The New Oregon Trail," a colored motion picture, has been used widely through distributing agencies and has been shown to more than 1,000,000 persons, in the Middle West and the Southwest principally, and a number of the films have been shown in the eastern states as well. In addition, many news stories, accompanied with photographs, were published in leading newspapers throughout the Middle West and in California, and were carried by the newspapers and magazines as feature articles that reached many thousands of people. It is nearly impossible to measure the value of these articles, but it would be safe to say that if it had been necessary to pay for them at the normal advertising space rates the cost would have been at least $250,000 during 1941 and 1942. Newspapers and magazines have been very co-operative in publishing these motor logs and recreational news stories.

During 1941 data was assembled for the preparation of a new booklet for advertising and scenic attractions of Oregon, and this booklet was published in the spring of 1942. Fifty thousand copies were printed and a considerable number have been distributed since their publication. While the number of inquiries for the booklets and maps has fallen off in 1942, inquiries keep coming in due to the advertising which was done in 1941 and in the spring of 1942. The number of inquiries for maps and publications has reached a total of approximately 10,000 for 1942.

It is not planned to print booklets or maps in 1943, as it is believed that the stock on hand will be ample to take care of the requests which will be received.

Since the Department was established in 1935, appropriations for the conduct of the Department's activities have totaled $656,000. There has been expended during that period $651,042.43, of which $39,445.70 was for activities in connection with the San Francisco World Fair. Breaking this expenditure down to some extent, $99,334.88 was expended for newspaper advertising, $271,309.70 was expended for magazine advertising, and $18,143.07 was expended for motion picture advertising. The balance of the expenditure was for administration and miscel-

laneous costs, such as printing booklets, maps, cuts, etc. The number of inquiries received is 293,548, the number of booklets printed 1,248,000, and the number of maps 704,000.

In the late spring of 1942, due to war conditions and the evident restrictions which would be in effect on tourist travel, the Highway Commission directed that newspaper and magazine advertising be discontinued, and that with the expiration of the motion picture contracts motion picture advertising be discontinued and the films called in. The films are now being shown occasionally on request of local groups who desire the showings for the benefit of school districts, clubs, lodges, and sportsmen's groups.

It is expected that the Travel Department will remain in operation in a skeleton form throughout the war period in order to take care of routine business, and to be in position to resume activities at the close of the war. Inquiries are being received continuously, in many cases from foreign countries. However, due to censorship restrictions, the sending of maps and booklets to these foreign inquiries is prohibited. In order that the advertising value built up by past expenditures may not be entirely lost, booklets and maps will continue to be sent to inquirers of other states, and, as an additional activity, 500,000 colored postal cards of views of the state of Oregon will be issued for distribution free to soldiers and sailors stationed in the state. It is expected that these cards will receive wide distribution and will reach communities in all parts of the United States. They should bring substantial returns in the way of tourist traffic and its accompanying revenues to the state, at the end of the war.

The Department maintains a photographic laboratory, and pictures are taken from time to time of the scenic attractions of the state, including the highways. The photographic equipment is used also in making photographic records of construction, in photographing tests made of materials such as steel and lumber, and in photographic work incidental to research work in the engineering laboratories. This photographic service is found to be very helpful in the preparation of booklets and in the publication of reports.

Mr. Harold B. Say, who directed the Travel and Information Department from its inception, was called into the Naval service as a Lieutenant on June 20, 1941. Mr. Ben E. Titus, who was assistant to Mr. Say at that time, was appointed Acting Director of the Department, but resigned on June 1, 1942, to enter federal service with the Office of Emergency Management. Mr. Oscar Cutler succeeded Mr. Titus as Acting Director and has since been directing the affairs of the Department.

MISCELLANEOUS ACTIVITIES

Research

During the current biennium, a modest research program has been continued. Research is restricted to projects of direct application to construction, maintenance, and operation of the highway system. Due to shortage of materials, equipment, and personnel, the program has been considerably curtailed during the last year of the biennium.

The study of short-span suspension bridges has been continued, and a check of the methods of analysis reported in the previous biennium has been made. This was accomplished by tests on a scale model. The results are reported in Technical Bulletin No. 15, issued in September of 1942.

The spacing and design of joints in concrete pavement is a problem of great importance. During the preceding biennium, a section of concrete pavement south of Salem was built which included a considerable range of joint spacings and several different joint designs. The performance of this section has been closely observed for the last three years. A preliminary report was made in Technical Report No. 40-2. Study is continuing, and a final report will be made during the next biennium. In May 1940, the Public Roads Administration proposed a series of experimental concrete pavement sections designed to furnish information relative to this same question. Oregon was among the five states invited to participate in the tests. A portion of the Lombard Street-Killingsworth Street Section of the Northeast Portland Secondary Highway was selected as a test section. Six subsections with different joint spacings and designs were built into this project. The project is now one year old, and performance under traffic is being closely watched. After a service life sufficient to make definite comparisons possible, a detailed report will be made. Experimental projects have also been built on the Crater Lake Highway between Eagle Point and Trail and on the South Santiam Highway between Albany and Lebanon.

The shortage of steel has made many of the usual types of construction impracticable and has forced the use of temporary

structures on many projects necessary in the war effort. For structural purposes, timber and unreinforced concrete are the materials most readily available. Several limited research projects have been carried on to develop new ways or to improve the existing practices in using these materials. Particular attention has been paid the more exact design of timber deck and stringer systems for trestle construction.

A list of the technical bulletins and reports published by the department follows:

Technical Bulletins

No. 1. Loading Tests on a New Composite-type Short-span Highway Bridge Combining Concrete and Timber in Flexure, by Baldock and McCullough. 1933.

No. 2.* Application of Freyssinet Method of Concrete Arch Construction to the Rogue River Bridge in Oregon, by Gemeny and McCullough. 1933.

No. 3.* Loading Tests on Steel Deck Plate Girder Bridge with Integral Concrete Floor, by Paxson. 1934.

No. 4.* Design of Waterway Areas for Bridges and Culverts, by McCullough. 1934.

No. 5. The Effect of Highway Design on Vehicle Speed and Fuel Consumption, by Beakey. 1937.

No. 6. The Effect of Heavy Motor Transport on Highway Bridge Stresses, by McCullough and Paxson. 1937.

No. 7. The Economics of Highway Planning (Revised September, 1938), by McCullough and Beakey. 1937.

No. 8. Determination of Highway System Solvencies, by McCullough. 1937.

No. 9. The Merit System for Engineering Personnel, by Baldock and McCullough. 1938.

No. 10. An Analysis of the Highway Tax Structure in Oregon, by McCullough, Beakey, and Van Scoy. 1938.

No. 11. An Economic Analysis of Short-span Suspension Bridges for Modern Highway Loadings, by McCullough, Paxson, and Smith. 1938.

* Supply exhausted.

No. 12. Light-reflecting Characteristics of Pavement Surfaces, by Paxson and Everson. 1939.

No. 13. Rational Design Methods for Short-span Suspension Bridges for Modern Highway Loadings, by McCullough, Paxson, and Smith. 1940.

No. 14. The Deriviation of Design Constants for Suspension Bridge Analysis, by McCullough, Paxson, and Smith. 1940.

No. 15. The Experimental Verification of Theory for Suspension Bridge Analysis, by McCullough, Paxson, and Rosecrans. 1942.

Technical Reports

Report of the Interim Committee appointed to study the Motor Transportation Act, by the Interim Committee. 1937.

No. 38-1. An Inventory of City Streets in Oregon, by Beakey, Van Scoy, and Walton. 1938.

No. 38-1A. Addenda to an Inventory of City Streets in Oregon, by Beakey, Van Scoy, and Walton. 1938.

No. 38-2. Rural Road Inventory of the State-wide Highway Planning Survey, by Beakey, Van Scoy, and Walton. 1938.

No. 38-3. Motor Vehicle Allocation and Road Use Surveys of the State-wide Highway Planning Survey, by Beakey, Van Scoy, and Myers. 1938.

No. 38-4. Fiscal Survey of the State-wide Highway Planning Survey, by Beakey, Van Scoy, and Keef. 1938.

No. 38-5. Rural Traffic Survey of the State-wide Highway Planning Survey, by Beakey, Glenn, and Manning. 1938.

No. 38-5A. Annual Daily Traffic Density Tables of the Rural Traffic Survey, State-wide Highway Planning Survey (report accompanied by traffic station maps—price $5.00), by Beakey, Glenn, and Manning. 1938.

No. 38-6. Urban Traffic Survey (Part I and Part II), by Beakey, Glenn, and Manning. 1938.

No. 39-1. Data Supplementary to Interim Committee Report of January 1, 1937, by Beakey and Myers. 1939.

No. 39-2. A State-wide Survey of Aggregates, by Finkbiner. 1939.

No. 39-3. Notes on the Application of Soil Mechanics to Highway Excavations and Embankments, by Paxson and Smith. 1939.

No. 39-4. Offset Tables for Vertical Curves, by Swart. 1939.

No. 39-5. Skid-resistant Characteristics of Oregon Pavement Surfaces, by Beakey, Klein, and Brown. 1939.

No. 39-6. Record of Road Costs and Earnings on the Oregon State Highway System for the Calendar Year 1937, by Probert and Bonnett. 1939.

No. 40-1. Traffic Density Tables for 1939, by Beakey and Manning. 1940.

No. 40-2. A Study of Expansion Joint Behavior in a Typical Western Oregon Pavement, by McCullough, Smith, and Webber. 1940.

No. 40-3. Data Supplementary to Interim Committee Report of January 1, 1937, by Baldock, Beakey, and Myers. 1940.

No. 41-1. Traffic Density Tables for 1940, by Beakey, and Manning. 1941.

No. 42-1. Traffic Density Tables for 1941, by Beakey and Manning. 1942.

No. 42-2. Data Supplementary to Technical Bulletin No. 10, by McCullough and Myers. 1942.

BATTLING SNOW IN THE VICINITY OF MT. HOOD

Section Three

FINANCIAL STATEMENTS

Covering the Fiscal Period
July 1, 1940, to June 30, 1942

AND

STATISTICAL INFORMATION

PERTAINING TO

State Highways and County Roads

IN THE

STATE OF OREGON

INDEX TO TABLES

		Page
Table No. 1.	Detailed Summary of Income and Expenditures	153
Table No. 2.	Summary of Expenditures	155
Table No. 3.	Mileages of Highway Construction Work Performed	156
Table No. 4.	Mileages of State Highways Maintained	157
Table No. 5.	State Funds Received and Expended, 1917 to 1942	158
Table No. 6.	Yearly Expenditures by Funds, 1917 to 1942	159
Table No. 7.	Summary of Expenditures by Major Items, 1917 to 1942	160
Table No. 8.	Summary of Expenditures, 1917 to 1942	161
Table No. 9.	Incomes from Different Sources, 1917 to 1942	162
Table No. 10.	Expenditures for Different Purposes, 1917 to 1942	164
Table No. 11.	Construction Expenditures, Primary Highways	168
Table No. 12.	Maintenance Expenditures, Primary Highways	170
Table No. 13.	Primary Highway Construction Expenditures by Counties	171
Table No. 14.	Primary Highway Maintenance Expenditures by Counties	172
Table No. 15.	Secondary Highway Construction Expenditures by Counties	173
Table No. 16.	Secondary Highway Maintenance Expenditures by Counties	174
Table No. 17.	County Road Construction Expenditures by Counties	175
Table No. 18.	County Road Maintenance Expenditures by Counties	176

Index to Tables—Continued

		Page
Table No. 19.	Forest Highway Expenditures by Counties	177
Table No. 20.	Forest Highway Expenditures by Highways	178
Table No. 21.	Forest Highway Statistics by Years	179
Table No. 22.	County Disbursements for Road Purposes	181
Table No. 23.	County Indebtedness for Road Purposes	182
Table No. 24.	Apportionment to Counties of Motor Vehicle Fees	183
Table No. 25.	Mileages of Primary State Highways	184
Table No. 26.	Mileages of Primary Highways by Counties	185
Table No. 27.	Mileages of Secondary Highways by Counties	186
Table No. 28.	Mileages of Secondary State Highways	187
Table No. 29.	Mileages of Roads Other Than State Highways	189
Map of State Highway System—Opposite page		184
List of Persons Rendering Professional or Special Services		190
List of Employes of the State Highway Commission		192

Table No. 1

DETAILED SUMMARY OF INCOME AND EXPENDITURES

July 1, 1940, to June 30, 1942

INCOME

Classification	Receipts July 1, 1940, to June 30, 1941	Receipts July 1, 1941, to June 30, 1942	Total Receipts July 1, 1940, to June 30, 1942
State Funds:			
Balance on hand, July 1, 1940	$ 3,504,316.66	$	$ 3,504,316.66
Motor vehicle license fees	3,237,668.43	3,611,083.04	6,848,751.47
Gasoline tax	11,950,475.15	12,976,352.12	24,926,827.27
Motor transportation fees	1,167,316.37	1,425,425.39	2,592,741.76
Fines for traffic law violations	33,478.32	45,572.38	79,050.70
Interest and cash discounts	9,331.19	8,102.87	17,434.06
Sub-totals, state funds	$19,902,586.12	$18,066,535.80	$37,969,121.92
Co-operative Funds:			
County co-operative funds	$ 4,000.00	$ 62,041.05	$ 66,041.05
Federal co-operative funds	2,659,384.02	3,005,099.48	5,664,483.50
Miscellaneous co-operative funds	1,000.00	15,490.15	16,490.15
Sub-totals, co-operative funds	$ 2,664,384.02	$ 3,082,630.68	$ 5,747,014.70
Grand total income	$22,566,970.14	$21,149,166.48	$43,716,136.62
Less Contributions:			
To state police	$ 352,225.50	$ 330,724.43	$ 682,949.93
To counties	2,410,961.39	2,815,071.90	5,226,033.29
Sub-totals, contributions	$ 2,763,186.89	$ 3,145,796.33	$ 5,908,983.22
Total net income	$19,803,783.25	$18,003,370.15	$37,807,153.40

Table No. 1—Continued

EXPENDITURES

Classification	Expended July 1, 1940, to June 30, 1941	Expended July 1, 1941, to June 30, 1942	Total Expended July 1, 1940, to June 30, 1942
Capital Outlays:			
Construction, primary highways	$ 5,648,376.23	$ 5,390,167.80	$11,038,544.03
Construction, secondary highways	798,351.27	1,324,600.97	2,122,952.24
Construction, county roads	317,380.73	481,175.72	798,556.45
Co-operation in forest road work	133,000.00	152,500.00	285,500.00
Minor betterments, primary	270,854.31	203,785.88	474,640.19
Minor betterments, secondary	115,231.10	104,219.74	219,450.84
Surveys and engineering county work	299,388.76	282,031.79	581,420.55
Real property negotiating expense	31,598.97	38,559.26	70,158.23
Purchase of rights of way, quarries, etc.	764,886.79	1,039,903.78	1,804,790.57
Purchase of parks	67,116.35	76,464.89	143,581.24
Improvements in parks	26,255.12	23,555.60	49,810.72
Improvements at maintenance stations	131,999.21	72,155.50	204,154.71
Improvements on other properties	98,617.29	94,137.38	192,754.67
Equipment purchases, less credits for sales and depreciation	197,917.42	109,069.38	306,986.80
Sub-totals, capital outlays	$ 8,900,973.55	$ 9,392,327.69	$18,293,301.24
Maintenance:			
Special maintenance, primary	$ 331,993.09	$ 370,740.27	$ 702,733.36
Special maintenance, secondary	36,037.71	84,734.40	120,772.11
General maintenance, primary	2,644,131.92	2,829,774.64	5,473,906.56
General maintenance, secondary	700,394.40	860,728.81	1,561,123.21
County road signing	13,746.61	32,640.48	46,387.09
City street maintenance	.....	40,288.02	40,288.02
District maintenance superintendence	114,823.96	112,111.16	226,935.12
Sub-totals, maintenance	$ 3,841,127.69	$ 4,331,017.78	$ 8,172,145.47
Administration and Operation:			
Administration and general supervision	$ 471,389.86	$ 476,674.44	$ 948,064.30
Planning and traffic surveys	92,324.09	84,480.21	176,804.30
Travel and information bureau	103,268.71	51,591.77	154,860.48
Operation of parks	38,142.11	50,567.27	88,709.38
Operation of maintenance stations	34,389.37	39,696.51	74,085.88
Drawbridges and ferries	51,392.41	58,282.06	109,674.47
Miscellaneous	68,699.39	182,769.78	251,469.17
Sub-totals, operation	$ 859,605.94	$ 944,062.04	$ 1,803,667.98
Service and clearing accounts	Cr.$ 349,640.33	$ 55,693.66	Cr.$ 293,946.67
Bond interest and maturities	2,786,732.92	2,691,437.88	5,478,170.80
Totals	$16,038,799.77	$17,414,539.05	$33,453,338.82

Table No. 2

SUMMARY OF EXPENDITURES

July 1, 1940, to June 30, 1942

Classification of Expenditures	Total Amount Expended	Cooperation in Expenditures			
		State	County	Federal Government	Miscellaneous Contributors
Construction, primary highways	$11,033,544.03	$ 6,358,474.44	$ 8,000.00	$ 4,665,819.59	$ 6,250.00
Construction, secondary highways	2,122,952.24	1,687,730.13	.....	435,222.11	.....
Construction, county roads	798,556.45	268,013.01	58,041.05	462,262.24	10,240.15
Co-operation in forest road work	285,500.00	285,500.00	.....	.....	.....
Minor betterments, primary	474,640.19	474,640.19	.....	.....	.....
Minor betterments, secondary	219,450.84	219,450.84	.....	.....	.....
Surveys and engineering county work	581,420.55	581,420.55	.....	.....	.....
Real property negotiation field expense	70,158.23	70,158.23	.....	.....	.....
Purchase of rights of way, quarries, etc.	1,804,790.57	1,804,790.57	.....	.....	.....
Purchase of parks	143,581.24	143,581.24	.....	.....	.....
Improvements in parks	49,810.72	49,810.72	.....	.....	.....
Improvements at maintenance stations	204,154.71	204,154.71	.....	.....	.....
Improvements of other properties	192,754.67	192,754.67	.....	.....	.....
Equipment purchases, sales and depreciation	306,986.80	306,986.80	.....	.....	.....
Sub-totals, capital outlays	$18,293,301.24	$12,647,466.10	$ 66,041.05	$ 5,563,303.94	$ 16,490.15
Special maintenance, primary	$ 702,733.36	$ 702,658.80	$	$ 74.56	$ .....
Special maintenance, secondary	120,772.11	120,772.11	.....	.....	.....
General maintenance, primary	5,473,906.56	5,473,906.56	.....	.....	.....
General maintenance, secondary	1,561,123.21	1,561,123.21	.....	.....	.....
County road signing	46,387.09	46,387.09	.....	.....	.....
City street maintenance	40,288.02	40,288.02	.....	.....	.....
District maintenance superintendence	226,935.12	226,935.12	.....	.....	.....
Sub-totals, maintenance	$ 8,172,145.47	$ 8,172,070.91	$	$ 74.56	$ .....
Administration and general supervision	$ 948,064.30	$ 948,064.30	$	$	$ .....
Planning and traffic surveys	176,804.30	75,699.30	.....	101,105.00	.....
Travel and information bureau	154,860.48	154,860.48	.....	.....	.....
Operation of parks	88,709.38	88,709.38	.....	.....	.....
Operation of maintenance stations	74,085.88	74,085.88	.....	.....	.....
Drawbridges and ferries	109,674.47	109,674.47	.....	.....	.....
Miscellaneous	251,469.17	251,469.17	.....	.....	.....
Sub-totals, operation	$ 1,803,667.98	$ 1,702,562.98	$	$ 101,105.00	$ .....
Service and clearing accounts	Cr.$ 291,079.18	Cr.$ 291,079.18	$	$	$ .....
Bond interest and maturities	5,478,170.80	5,478,170.80	.....	.....	.....
Totals	$33,456,206.31	$27,709,191.61	$ 66,041.05	$ 5,664,483.50	$ 16,490.15

Table No. 3

MILEAGES OF HIGHWAY CONSTRUCTION WORK PERFORMED by the STATE HIGHWAY COMMISSION

New Construction

Highway System and Year	Concrete Pavement (Miles)	Bituminous Pavement (Miles)	Bituminous Macadam (Miles)	Oiled Surfacing (Miles)	Rock and Gravel Surfacing (Miles)	Grading (Miles)	Bridges Over 20 Feet (No.)	Grade Separations (No.)
Primary:								
1913-1936	239.3	551.6	802.5	2,237.2	2,747.8	3,163.7	944	38
1937	6.1	0.8	79.9	239.1	2.8	18.4	36	10
1938	8.7	.....	31.3	177.0	96.0	25.9	15	4
1939	1.4	.....	.....	210.0	79.5	9.3	8	2
1940	18.3	1.7	34.6	142.3	88.9	15.6	32	5
1941	0.3	.....	40.7	52.8	53.4	41.7	15	2
1942	8.4	6.2	38.9	37.6	29.2	19.5	31	1
Totals	282.5	560.3	1,027.9	3,096.0	3,097.6	3,294.1	1,081	62
Secondary:								
1933-1936	3.4	1.5	14.8	107.3	53.7	108.9	71	5
1937	.....	.....	.....	94.5	.....	2.1	2	2
1938	.....	.....	.....	34.6	3.2	21.8	7	2
1939	0.2	.....	.....	135.5	16.2	10.6	3	.....
1940	.....	.....	4.9	53.0	6.3	44.0	3	.....
1941	3.9	.....	8.5	108.2	71.4	7.1	16	1
1942	.....	1.3	.....	74.7	26.5	11.7	3	1
Totals	7.5	2.8	28.2	607.8	177.3	206.2	105	11
County Roads:								
1935-1936	1.2	12.9	5.9	61.3	18.9	23.2	1	2
1937	.....	.....	.....	5.4	.....	.....	.....	2
1938	0.1	.....	1.5	42.1	28.4	.....	1	.....
1939	0.1	0.4	.....	26.4	3.0	3.0	.....	1
1940	0.5	.....	.....	21.2	10.6	.....	1	.....
1941	.....	.....	6.5	17.6	5.2	5.2	1	.....
1942	.....	3.7	13.9	23.2	15.7	13.8	7	.....
Totals	1.9	17.0	27.8	197.2	81.8	45.2	11	5

Table No. 3—Continued

Reconstruction

Highway System and Year	Pavement Reconstruction and Widening (Miles)	Non-skid Treatment of Pavement (Miles)	Reconstruction of Oiled Surface (Miles)	Rock and Gravel Resurfacing (Miles)	Regrading and Grade Widening (Miles)
Primary:					
1913-1936	227.6	412.3	1.4	1,110.0	943.9
1937	54.8	.....	13.7	146.7	103.4
1938	15.5	.....	96.6	52.2	65.2
1939	3.1	.....	107.5	114.9	87.1
1940	16.6	2.6	147.1	110.0	61.9
1941	8.5	20.3	33.2	78.5	65.1
1942	12.3	.....	14.6	74.9	82.1
Totals	338.4	435.2	414.1	1,687.2	1,408.7
Secondary:					
1933-1936	2.0	.....	3.8	84.9	44.0
1937	.....	.....	1.1	26.8	4.1
1938	0.3	.....	1.7	28.5	5.7
1939	.....	.....	1.8	45.5	33.4
1940	.....	.....	17.2	41.2	19.6
1941	0.4	.....	22.1	64.3	102.4
1942	1.0	.....	0.6	70.6	40.0
Totals	3.7	.....	48.3	361.8	249.2
County Roads:					
1935-1936	.....	.....	.....	14.4	12.4
1937	.....	.....	.....	5.4	.....
1938	.....	.....	.....	5.0	11.4
1939	6.5	.....	.....	14.9	15.7
1940	0.5	.....	3.3	22.1	24.0
1941	2.9	.....	1.7	24.0	9.3
1942	6.4	.....	.....	22.4	22.4
Totals	16.3	.....	5.0	108.2	95.2

Table No. 4

MILEAGES OF STATE HIGHWAYS MAINTAINED BY THE STATE HIGHWAY COMMISSION

Highway System and Year	Concrete Pavement	Bituminous Pavement	Bituminous Macadam	Oiled Rock Surfacing	Unoiled Rock Surfacing	Graded and Unimproved Earth	Total
Primary:							
1936	250	580	918	1,656	750	406	4,560
1937	297	581	1,082	1,683	715	233	4,591
1938	309	563	1,080	1,890	559	219	4,620
1939	307	561	1,103	2,084	450	175	4,680
1940	322	530	1,116	2,244	374	131	4,717
1941	325	527	1,122	2,367	330	89	4,760
Secondary:							
1936	37	115	25	327	957	578	2,039
1937	43	115	14	485	949	586	2,192
1938	51	127	38	491	1,017	484	2,208
1939	51	128	63	613	982	389	2,226
1940	46	134	41	727	915	445	2,308
1941	54	133	48	939	794	381	2,349

See previous reports for details covering years prior to 1936.

Table No. 5

STATE FUNDS RECEIVED AND EXPENDED BY THE STATE HIGHWAY COMMISSION

Years 1917 to 1942

Year	Net Receipts (State Funds Only)	Net Expenditures (State Funds Only)
1917 (including $94,418.14 balance from 1916)	$ 1,802,190.22	$ 674,249.61
1918	1,759,600.15	2,214,007.87
1919	7,458,614.05	6,248,304.16
1920	11,320,354.05	11,381,606.97
1921	13,550,136.40	15,000,824.65
1922	9,608,966.45	7,724,688.96
1923	7,664,977.79	7,287,991.77
1924	6,115,536.48	6,916,867.91
1925	10,231,908.30	10,611,283.45
1926	7,345,080.19	7,927,130.75
1927	8,627,279.00	8,474,609.91
1928	8,721,396.09	8,975,204.79
1929	10,658,473.58	10,160,542.57
1930	13,897,663.65	12,808,014.45
1931	10,930,545.38	11,108,835.57
1932	9,925,665.72	10,812,369.81
1933	7,804,925.99	7,860,497.50
1934	8,798,396.81	7,517,063.41
1935	14,469,922.86	13,687,022.82
1936	10,943,742.46	13,194,698.50
1937	11,996,069.07	12,595,127.42
1938	11,418,916.44	11,261,453.70
1939	11,821,364.62	*11,158,189.25
1940	12,759,332.27	*12,156,575.57
1941	15,093,637.57	14,874,800.01
1942 (to June 30)	7,915,031.85	5,653,951.48
Totals	$252,639,727.44	$248,285,912.86
Balance on hand July 1, 1942		4,353,814.58
Totals		$252,639,727.44

* The expenditures for the year 1939, as given in the 1940 Biennial Report, have been adjusted by an increase of $3,695.88 for hospital deductions not disbursed as of January 1, 1940, and the expenditures for the year 1940, as given in the 1940 Annual Report, have been adjusted by a decrease of $2,867.49 for hospital payments in excess of pay roll deductions.

Table No. 6

YEARLY EXPENDITURES ON WORK HANDLED UNDER THE SUPERVISION OF THE STATE HIGHWAY COMMISSION

Years 1917 to 1942

Year	State Funds	County Funds	Government Funds	Miscellaneous Contributor's Funds	Totals
1917	$ 674,249.61	$ 270,162.37	$	$	$ 944,411.98
1918	2,214,007.87	439,562.42	.....	.....	2,653,570.29
1919	6,248,304.16	368,550.01	224,851.60	.....	6,841,705.77
1920	11,381,606.97	868,539.59	1,096,027.33	17,661.62	13,363,835.51
1921	15,000,824.65	985,831.42	2,181,956.65	46,378.16	18,214,990.88
1922	7,724,688.96	3,814,402.13	1,043,695.07	33,341.49	12,616,127.65
1923	7,287,991.77	2,199,707.40	1,719,088.71	129,634.73	11,336,422.61
1924	6,916,867.91	1,586,176.49	1,118,777.53	94,241.61	9,716,063.54
1925	10,611,283.45	1,327,243.26	1,327,328.92	62,500.74	13,328,356.37
1926	7,927,130.75	715,701.37	1,264,688.74	78,916.59	9,986,437.45
1927	8,474,609.91	618,679.22	1,111,521.64	58,632.08	10,263,442.85
1928	8,975,204.79	683,625.95	582,440.20	26,973.39	10,268,244.33
1929	10,160,542.57	532,907.15	624,415.28	9,969.29	11,327,834.29
1930	12,808,014.45	280,829.24	1,565,288.34	13,804.57	14,667,936.60
1931	11,108,835.57	256,811.39	4,535,069.46	.....	15,900,716.42
1932	10,812,369.81	165,499.67	1,703,369.15	63,251.92	12,744,490.55
1933	7,860,497.50	168,028.79	2,723,724.39	26,912.05	10,779,162.73
1934	7,517,063.41	174,720.24	6,023,993.01	3.522.50	13,719,299.16
1935	13,687,022.82	133,562.57	4,165,503.33	10,000.00	17,996,088.72
1936	13,194,698.50	129,233.41	6,375,343.26	8,773.61	19,708,048.78
1937	12,595,127.42	80,174.48	4,589,894.89	62,146.90	17,327,343.69
1938	11,261,453.70	186,284.48	2,873,801.64	25,000.00	14,346,539.82
1939	11,158,189.25	9,480.34	2,652,475.77	12,202.46	13,832,347.82
1940	12,156,575.57	4,000.00	2,926,250.31	30,976.06	15,117,801.94
1941	14,874,800.01	62,041.05	2,810,894.93	7,250.00	17,754,985.99
1942 (to June 30)	5,653,951.48	.....	1,284,434.92	9,240.15	6,947,626.55
Totals	$248,285,912.86	$16,061,754.44	$56,524,835.07	$831,329.92	$321,703,832.29

Table No. 7

SUMMARY OF EXPENDITURES BY MAJOR ITEMS

Years 1917 to 1942, Inclusive

Classification of Expenditures	Total Amount Expended	Cooperation in Expenditures			
		State	County	Government	Miscellaneous Contributors
CAPITAL OUTLAYS					
Contract construction	$158,555,066.22	$ 86,414,287.36	$ 15,210,745.61	$ 55,879,957.86	$ 1,050,075.39
Co-operation in forest road work	6,105,503.86	5,611,153.49	494,350.37	.....	.....
Minor betterments	6,976,170.19	6,966,897.45	5,272.74	4,000.00	.....
Surveys	4,217,514.59	4,181,442.38	15,672.21	20,400.00	.....
Sub-totals, construction	$175,854,254.86	$103,173,780.68	$ 15,726,040.93	$ 55,904,357.86	$ 1,050,075.39
Rights of way, quarries, etc.	$ 5,879,996.56	$ 5,870,086.81	$ 9,909.75	$	$ .....
Parks	889,883.99	889,883.99	.....	.....	.....
Buildings and improvements (except parks)	845,659.29	813,199.69	.....	32,459.60	.....
Equipment (subsequent to 1934 only)	732,550.56	732,550.56	.....	.....	.....
Sub-totals, capital outlays (including construction)	$184,202,345.26	$111,479,501.73	$ 15,735,950.68	$ 55,936,817.46	$ 1,050,075.39
MAINTENANCE					
Special maintenance	$ 6,981,512.92	$ 6,802,836.61	$ 2,516.17	$ 176,047.45	$ 112.69
General maintenance	47,261,009.45	47,168,039.30	85,848.05	5,340.23	1,781.87
Sub-totals, maintenance	$ 54,242,522.37	$ 53,970,875.91	$ 88,364.22	$ 181,387.68	$ 1,894.56
MISCELLANEOUS					
Administration and general supervision	$ 6,463,722.12	$ 6,463,722.12	$	$	$ .....
Miscellaneous operations	4,387,762.79	3,964,333.35	16,799.51	406,629.93	.....
Bond interest and maturities	72,407,479.75	72,407,479.75	.....	.....	.....
Sub-totals, miscellaneous	$ 83,258,964.66	$ 82,835,535.22	$ 16,799.51	$ 406,629.93	$ .....
Totals	$321,703,832.29	$248,285,912.86	$ 15,841,114.41	$ 56,524,835.07	$ 1,051,969.95

For a summary of expenditures in detail see page 161.

Table No. 8

SUMMARY OF EXPENDITURES

Years 1917 to 1942, Inclusive

Classification of Expenditures	Total Amount Expended	Cooperation in Expenditures			
		State	County	Government	Miscellaneous Contributors
Construction, primary highways	$143,782,837.32	$ 78,507,471.27	$ 14,497,145.36	$ 49,754,467.02	$ 1,023,753.67
Construction, secondary highways	10,704,226.07	6,174,367.83	387,644.19	4,139,862.05	2,352.00
Construction, county roads	4,068,002.83	1,732,448.26	325,956.06	1,985,628.79	23,969.72
Co-operation in forest road work	6,105,503.86	5,611,153.49	494,350.37		
Minor betterments, primary	6,071,372.36	6,062,873.80	4,498.56	4,000.00	
Minor betterments, secondary	872,348.92	871,574.74	774.18		
Minor betterments, county roads	32,448.91	32,448.91			
Surveys and engineering county work	4,217,514.59	4,181,442.38	15,672.21	20,400.00	
Real property negotiation field expense	342,954.20	342,954.20			
Purchase of rights of way, quarries, etc.	5,537,042.36	5,527,132.61	9,909.75		
Purchase of parks	649,035.51	649,035.51			
Improvements in parks	240,848.48	240,848.48			
Improvements at maintenance stations	639,345.81	606,886.21		32,459.60	
Improvements of other properties	206,313.48	206,313.48			
Equipment purchases, sales and depreciation (net)	732,550.56	732,550.56			
Sub-totals, capital outlays	$184,202,345.26	$111,479,501.73	$ 15,735,950.68	$ 55,936,817.46	$ 1,050,075.39
Special maintenance, primary	$ 6,516,090.80	$ 6,353,288.08	$ 528.87	$ 162,161.16	$ 112.69
Special maintenance, secondary	465,422.12	449,548.53	1,987.30	13,886.29	
General maintenance, primary	38,824,984.48	38,732,977.83	84,884.55	5,340.23	1,781.87
General maintenance, secondary	6,161,260.94	6,160,844.07	416.87		
County road maintenance, signs, etc.	342,626.45	342,079.82	546.63		
City street maintenance (not on state system)	40,288.02	40,288.02			
District maintenance superintendence	1,891,849.56	1,891,849.56			
Sub-totals, maintenance	$ 54,242,522.37	$ 53,970,875.91	$ 88,364.22	$ 181,387.68	$ 1,894.56
Administration and general supervision	$ 6,463,722.12	$ 6,463,722.12	$	$	$
Planning and traffic surveys	809,943.40	428,585.47		381,357.93	
Travel and information bureau	653,402.80	653,402.80			
Operation of parks	257,332.86	257,332.86			
Operation of maintenance stations	238,262.99	238,262.99			
Drawbridges and ferries	1,096,185.47	1,079,385.96	16,799.51		
Miscellaneous	1,857,938.41	1,832,666.41		25,272.00	
Sub-totals, operation	$ 11,376,788.05	$ 10,953,358.61	$ 16,799.51	$ 406,629.93	$
Service and clearing accounts	Cr. 525,303.14	Cr. 525,303.14			
Bond interest and maturities	72,407,479.75	72,407,479.75			
Totals	$321,703,832.29	$248,285,912.86	$ 15,841,114.41	$ 56,524,835.07	$ 1,051,969.95

Table No. 9

SCHEDULE OF YEARLY INCOMES FROM DIFFERENT SOURCES

Years 1917 to 1942, Inclusive

Source of Income	1917 to 1935, Inclusive	1936	1937	1938	1939
Balance on hand, December 1, 1916	$ 94,418.14	$	$	$	$ .....
Bond sales (including accrued interest)	52,127,920.04	700,000.00	1,000,000.00	750,000.00	.....
Motor vehicle license fees	54,913,061.34	2,436,752.57	2,904,902.16	2,521,844.16	2,959,667.67
Gasoline tax	64,159,650.26	9,115,192.59	9,780,984.83	9,769,732.13	10,271,167.85
Motor transportation fees	2,662,847.48	790,500.62	604,801.20	827,332.15	921,472.76
One-quarter mill property tax	1,724,032.33	.....	.....	.....	.....
Interest on bank balances, discounts, etc.	543,758.10	322.06	659.87	7.95	.61
Fines for traffic law violations	254,433.32	26,505.29	31,785.99	23,627.68	23,657.50
Transfer to increase revolving fund	.....	.....	75,000.00	.....	50,000.00
Sub-totals of state funds (gross)	$176,480,121.01	$ 13,069,273.13	$ 14,398,134.05	$ 13,892,544.07	$ 14,225,966.39
Less contributions to state police	$ 988,487.85	$ 287,751.00	$ 326,741.28	$ 347,860.00	$ 340,133.75
Less contributions to counties	4,800,000.00	1,600,000.00	2,000,000.00	2,125,767.63	2,064,468.02
Less contributions to state general fund	.....	237,779.67	75,323.70	.....	.....
Sub-totals of state funds (net)	$170,691,633.16	$ 10,943,742.46	$ 11,996,069.07	$ 11,418,916.44	$ 11,821,364.62
County co-operation	$ 15,590,540.68	$ 129,233.41	$ 80,174.48	$ 186,284.48	$ 9,480.34
Federal Government co-operation	33,011,739.35	6,375,343.26	4,589,894.89	2,873,801.64	2,652,475.77
Miscellaneous co-operation	675,740.74	8,773.61	62,146.90	25,000.00	12,202.46
Totals	$219,969,653.93	$ 17,457,092.74	$ 16,728,285.34	$ 14,504,002.56	$ 14,495,523.19

Table No. 9—Continued

SCHEDULE OF YEARLY INCOMES FROM DIFFERENT SOURCES

Years 1917 to 1942, Inclusive

Source of Income	1917 to 1939, Inclusive	1940	1941	1942 (to June 30)	Dec. 1, 1916, to June 30, 1942
Balance on hand, December 1, 1916	$ 94,418.14	$	$	$	$ 94,418.14
Bond sales (including accrued interest)	54,577,920.04	.....	.....	.....	54,577,920.04
Motor vehicle license fees	65,736,227.90	2,900,537.53	3,629,074.04	2,678,071.08	74,943,910.55
Gasoline tax	103,096,727.66	11,301,492.45	12,867,932.37	5,496,064.35	132,762,216.83
Motor transportation fees	5,806.954.21	1,104,338.56	1,297,786.27	696,791.69	8,905,870.73
One-quarter mill tax	1,724,032.33	.....	.....	.....	1,724,032.33
Interest on bank balances, discounts, etc.	544,748.59	9,573.78	9,758.70	21,771.34	585,852.41
Fines for traffic law violations	360,009.78	30,291.64	41,145.05	3,145.25	434,591.72
Transfer to increase revolving fund	125,000.00	.....	.....	.....	125,000.00
Sub-totals of state funds (gross)	$232,066,038.65	$ 15,346,233.96	$ 17,845,696.43	$ 8,895,843.71	$274,153,812.75
Less contributions to state police	$ 2,290,973.88	$ 352,225.00	$ 341,097.47	$ 165,739.96	$ 3,150,036.31
Less contributions to counties	12,590,235.65	2,234,676.69	2,410,961.39	815,071.90	18,050,945.63
Less contributions to state general fund	313,103.37	.....	.....	.....	313,103.37
Sub-totals of state funds (net)	$216,871,725.75	$ 12,759,332.27	$ 15,093,637.57	$ 7,915,031.85	$252,639,727.44
County co-operation	$ 15,995,713.39	$ 4,000.00	$ 62,041.05	$	$ 16,061,754.44
Federal Government co-operation	49,503,254.91	2,926,250.31	2,810,894.93	1,284,434.92	56,524,835.07
Miscellaneous co-operation	783,863.71	30,976.06	7,250.00	9,240.15	831,329.92
Totals	$283,154,557.76	$ 15,720,558.64	$ 17,973,823.55	$ 9,208,706.92	$326,057,646.87

Table No. 10

SCHEDULE OF YEARLY EXPENDITURES

Years 1917 to 1942, Inclusive

The expenditures in this table include all expenditures in connection with work handled under the direct supervision of the State Highway Commission during the period December 1, 1916, to June 30, 1942.

Classification of Expenditures	1917 to 1935, Inclusive	1936	1937	1938	1939
Construction, primary highways	$110,320,402.65	$ 7,736,813.95	$ 6,574,562.37	$ 3,704,848.16	$ 4,263,296.38
Construction, secondary highways	3,333,525.71	1,726,000.20	593,672.40	527,058.56	830,342.17
Construction, county roads	803,118.53	1,074,075.20	86,967.63	293,644.26	482,112.38
Co-operation in forest road work	5,492,503.86	205,000.00	112,500.00	Cr. 25,000.00	35,000.00
Minor betterments, primary	4,891,881.58	206,482.86	198,934.90	151,203.32	187,233.39
Minor betterments, secondary	139,494.85	79,295.29	117,848.69	98,236.34	102,307.29
Minor betterments, county roads	.....	.....	.....	.....	.....
Surveys and engineering county work	2,564,512.62	215,504.64	274,916.25	252,379.65	213,773.39
Sub-totals, construction	$127,545,439.80	$ 11,243,172.14	$ 7,959,402.24	$ 5,002,370.29	$ 6,114,065.00
Real property negotiation field expense	$ 96,070.02	$ 31,353.07	$ 40,595.44	$ 44,201.38	$ 45,782.90
Purchase of rights of way, quarries, etc.	1,071,574.15	699,639.85	586,103.69	587,088.05	544,666.68
Purchase of parks	230,505.61	59,188.65	15,755.70	76,640.86	72,685.98
Improvements in parks	142,811.80	8,074.66	6,911.93	13,219.77	11,199.14
Improvements at maintenance stations	184,738.33	49,079.99	32,676.70	57,785.77	82,587.83
Improvements of other properties	3,155.69	.....	.....	2,001.84	1,341.84
Equipment purchases, sales and depreciation (net)	* 8,784.50	77,128.03	227,783.42	Cr. 47,325.75	47,898.36
Sub-totals, capital outlays (including construction)	$129,283,079.90	$ 12,167,636.39	$ 8,869,229.12	$ 5,735,982.21	$ 6,920,227.73

Special maintenance, primary	$ 4,720,021.45	$ 238,185.58	$ 306,463.74	$ 324,138.11	$ 270,804.59
Special maintenance, secondary	.....	.....	18,929.40	42,559.88	55,957.71
General maintenance, primary	24,274,966.26	2,043,248.69	2,547,357.41	2,304,398.51	2,296,980.98
General maintenance, secondary	1,349,658.32	454,331.21	614,014.15	606,856.57	584,307.02
County road maintenance, signs, etc.	.....	.....	.....	20,318.73	19,796.37
City street maintenance (not on state system)	.....	.....	.....	.....	.....
District maintenance superintendence	1,028,587.46	96,160.32	113,911.95	114,994.93	110,409.11
Sub-totals, maintenance	$ 31,373,233.49	$ 2,831,925.80	$ 3,600,676.65	$ 3,413,266.73	$ 3,338,255.78
Administration and general supervision	$ 3,691,601.54	$ 333,610.62	$ 378,118.95	$ 444,471.33	$ 439,553.42
Planning and traffic surveys	.....	152,570.82	253,755.24	137,778.47	60,637.46
Travel and information bureau	7,197.13	49,202.52	98,703.90	115,603.04	145,974.22
Operation of parks	52,679.45	12,626.63	22,786.41	27,844.52	35,139.94
Operation of maintenance stations	58,787.48	8,831.60	13,130.09	10,481.59	26,036.68
Operation of drawbridges and ferries	737,619.43	102,313.84	40,633.34	40,615.01	43,966.13
Miscellaneous	1,158,484.10	87,806.01	179,403.84	71,868.72	113,818.19
Sub-totals, operation	$ 5,706,369.13	$ 746,962.04	$ 986,531.77	$ 848,662.68	$ 865,126.04
Service and clearing accounts	Cr. 240,982.67	Cr. 78,514.14	86,678.09	Cr. 79,136.07	Cr. 67,655.96
Bond interest and maturities	50,547,437.85	4,040,038.69	3,784,228.06	4,427,764.27	2,776,394.23
Totals	$216,669,137.70	$ 19,708,048.78	$ 17,327,343.69	$ 14,346,539.82	$ 13,832,347.82

* No record of expenditures under this classification prior to 1935.

Table No. 10—Continued

SCHEDULE OF YEARLY EXPENDITURES

Years 1917 to 1942, Inclusive

Classification of Expenditures	1940	1941	1942 (to June 30)	Reclassification Transfers	1917 to June 30, 1942
Construction, primary highways	$ 5,557,962.24	$ 5,862,507.92	$ 1,572,834.12	Cr.$1,810,390.47	$143,782,837.32
Construction, secondary highways	575,782.58	1,344,747.54	404,990.76	1,368,106.15	10,704,226.07
Construction, county roads	370,953.32	414,835.15	94,241.45	448,054.91	4,068,002.83
Co-operation in forest road work	.....	285,500.00	.....	.....	6,105,503.86
Minor betterments, primary	234,909.58	254,144.40	55,969.53	Cr. 109,387.20	6,071,372.36
Minor betterments, secondary	99,977.16	126,166.84	23,447.92	85,574.54	872,348.92
Minor betterments, county roads	.....	.....	.....	32,448.91	32,448.91
Surveys and engineering county work	261,635.91	307,343.05	145,520.87	Cr. 18,071.79	4,217,514.59
Sub-totals, construction	$ 7,101,220.79	$ 8,595,244.90	$ 2,297,004.65	Cr.$ 3,664.95	$175,854,254.86
Real property negotiation field expense	$ 29,222.37	$ 35,771.29	$ 19,957.73	$	$ 342,954.20
Purchase of rights of way, quarries, etc.	414,128.94	1,140,986.03	492,854.97	.....	5,537,042.36
Purchase of parks	72,201.01	104,419.29	17,638.41	.....	649,035.51
Improvements in parks	27,508.37	25,364.97	5,757.84	.....	240,848.48
Improvements at maintenance stations	131,636.06	67,356.63	33,484.50	.....	639,345.81
Improvements of other properties	26,942.95	142,978.68	29,892.48	.....	206,313.48
Equipment purchases, sales and depreciation (net)	181,755.40	184,240.82	52,285.78	.....	732,550.56
Sub-totals, capital outlays (including construction)	$ 7,984,615.89	$ 10,296,362.61	$ 2,948,876.36	Cr.$ 3,664.95	$184,202,345.26

Special maintenance, primary	$ 314,288.28	$ 372,443.76	$ 170,200.19	Cr.$ 200,454.90	$ 6,516,090.80
Special maintenance, secondary	42,139.76	57,671.94	47,708.53	200,454.90	465,422.12
General maintenance, primary	2,439,501.08	2,740,332.38	1,246,135.52	Cr.1,067,936.35	38,824,984.48
General maintenance, secondary	687,794.03	760,360.41	432,671.77	671,267.46	6,161,260.94
County road maintenance, signs, etc.	12,606.66	10,236.40	28,876.25	250,792.04	342,626.45
City street maintenance (not on state system)	.....	6,178.67	34,109.35	.....	40,288.02
District maintenance superintendence	110,827.42	106,300.99	64,839.53	145,817.85	1,891,849.56
Sub-totals, maintenance	$ 3,607,157.23	$ 4,053,524.55	$ 2,024,541.14	Cr.$ 59.00	$ 54,242,522.37
Administration and general supervision	$ 461,151.50	$ 468,523.49	$ 242,967.32	$ 3,723.95	$ 6,463,722.12
Planning and traffic surveys	75,196.75	89,747.39	40,257.27	.....	809,943.40
Travel and information bureau	109,682.21	101,253.18	25,786.60	.....	653,402.80
Operation of parks	38,791.26	48,258.18	19,206.47	.....	257,332.86
Operation of maintenance stations	42,350.02	61,193.46	17,452.07	.....	238,262.99
Operation of drawbridges and ferries	49,330.90	50,725.59	30,981.23	.....	1,096,185.47
Miscellaneous	58,732.25	76,215.09	111,610.21	.....	1,857,938.41
Sub-totals, operation	$ 835,234.89	$ 895,916.38	$ 488,261.17	$ 3,723.95	$ 11,376,788.05
Service and clearing accounts	Cr. 67,930.26	Cr. 229,902.95	152,140.82	.....	Cr. 525,303.14
Bond interest and maturities	2,758,724.19	2,739,085.40	1,333,807.06	.....	72,407,479.75
Totals	$ 15,117,801.94	$ 17,754,985.99	$ 6,947,626.55	$	$321,703,832.29

Table No. 11

EXPENDITURES FOR PRIMARY HIGHWAY CONSTRUCTION WORK SUMMARIZED BY HIGHWAYS

Years 1917 to 1942, Inclusive

This table gives the totals of the expenditures made for construction work in each of the several highways during the 26-year period ending June 30, 1942. It includes expenditures for new construction, additions and betterments, surveys and the engineering of county construction. It includes also state expenditures in connection with forest highway work. It does not include expenditures for maintenance work, secondary highways, county roads, or the expenditures of the federal government and counties in connection with forest highway construction work.

Hwy. No.	Highway	Total Amount Expended	Cooperation in Expenditures			
			By State	By County	By Federal Government	By Miscellaneous Contributors
1	Pacific, Jct. City-South	$ 16,328,454.96	$ 11,740,838.86	$ 478,720.75	$ 3,975,259.52	$ 133,635.83
1E	Pacific, East	9,553,149.59	4,086,739.83	303,766.64	5,028,399.60	134,243.52
1W	Pacific, West	7,830,610.42	4,494,364.52	378,003.88	2,938,163.52	20,078.50
2	Columbia River	16,664,362.85	11,500,073.10	234,159.44	4,782,662.80	147,467.51
3	Oswego	947,163.57	627,253.75	168,309.82	114,100.00	37,500.00
4	The Dalles-California	6,375,664.20	2,626,700.77	1,042,711.72	2,676,246.79	30,004.92
5	John Day	5,977,232.68	3,019,935.49	599,304.42	2,355,992.77	2,000.00
6	Old Oregon Trail	9,518,003.90	4,753,599.85	714,684.47	3,812,887.83	236,831.75
7	Central Oregon	4,080,032.11	2,279,476.23	154,287.80	1,646,268.08	.....
8	Oregon-Washington	1,528,976.36	1,191,028.37	122,649.31	215,298.68	.....
9	Oregon Coast	24,872,471.07	15,044,264.10	2,044,814.63	7,742,027.83	41,364.51
10	Wallowa Lake	2,319,628.04	1,124,490.08	542,380.21	647,677.75	5,080.00
11	Enterprise-Lewiston	380,346.22	308,724.73	71,621.49	.....	.....
12	Baker-Homestead	1,305,522.85	573,852.04	508,976.18	167,916.45	54,778.18
13	Baker-Unity	782,958.07	440,445.08	331,113.14	11,399.85	.....
14	Crooked River	451,698.06	353,197.08	98,500.98	.....	.....
15	McKenzie	2,052,990.56	991,846.99	427,755.02	618,179.76	15,208.79
16	Santiam	2,106,203.15	1,278,452.67	232,885.28	555,200.96	39,664.24
17	McKenzie-Bend	90,954.40	85,445.20	5,509.20	.....	.....
18	Willamette	1,702,929.05	740,342.62	311,897.95	650,688.48	.....
19	Fremont	1,933,808.14	856,830.29	190,273.36	886,704.49	.....
20	Klamath Falls-Lakeview	2,419,028.34	1,761,797.06	265,269.22	390,639.65	1,322.41
21	Green Springs	2,097,677.58	1,074,498.16	557,877.85	438,529.42	26,772.15
22	Crater Lake	1,771,642.73	1,266,944.16	188,000.00	316,698.57	.....
23	Dairy-Bonanza	121,915.97	87,052.17	34,863.80	.....	.....
24	Burns-Crane	372,553.61	168,391.40	48,156.79	156,005.42	.....
25	Redwood	962,972.19	631,334.42	54,507.82	277,129.95	.....
26	Mt. Hood	2,395,157.93	1,675,098.22	505,287.08	214,772.63	.....
27	Alsea	1,370,012.51	1,040,910.55	278,757.08	50,344.88	.....
28	Pendleton-John Day	1,789,572.61	903,682.11	162,236.66	723,401.41	252.43
29	Tualatin Valley	2,170,819.53	1,525,113.58	177,813.38	455,193.64	12,698.93
30	Salem-Dallas	991,514.56	466,856.43	295,472.12	229,186.01	.....

Table No. 11—Continued

Hwy. No.	Highway	Total Amount Expended	Cooperation in Expenditures: By State	By County	By Federal Government	By Miscellaneous Contributors
31	Albany-Corvallis	$ 581,726.53	$ 114,948.10	$ 130,101.15	$ 299,593.00	$ 37,084.28
32	Three Rivers	597,094.34	516,803.91	21,646.19	58,644.24	.....
33	Corvallis-Newport	1,739,889.53	1,194,926.57	266,629.35	269,713.35	8,620.26
34	Siuslaw	1,680,738.31	1,161,084.35	476,293.56	43,360.40	.....
35	Coos Bay-Roseburg	1,899,452.34	990,838.93	649,440.43	243,072.98	16,100.00
36	Pendleton-Cold Springs	437,036.66	165,563.40	191,239.44	80,233.82	.....
37	Wilson River	1,770,965.58	1,215,226.29	.....	555,739.29	.....
38	Oregon Caves	474,662.21	460,662.21	14,000.00	.....	.....
39	Salmon River	1,418,352.24	1,139,708.19	58,106.99	220,537.06	.....
40	Beaverton-Hillsdale	276,212.17	138,959.20	61,252.97	76,000.00	.....
41	Ochoco	2,260,697.10	1,291,111.85	173,593.13	793,492.12	2,500.00
42	Sherman	1,281,412.94	417,429.30	360,879.73	501,356.12	1,747.79
43	Monmouth-Independence	69,004.69	69,004.69	.....	.....	.....
44	Wapinitia	779,429.84	487,929.82	.....	291,500.02	.....
45	Umpqua	1,663,589.64	308,638.09	366,174.97	988,776.58	.....
46	Necanicum	650,149.79	341,291.18	148,986.77	159,871.84	.....
47	Wolf Creek	4,126,264.26	2,203,925.82	92,000.00	1,830,338.44	.....
48	John Day-Burns	159,517.98	159,517.98	.....	.....	.....
49	Lakeview-Burns	550,044.72	302,000.01	31,604.06	216,440.65	.....
50	Klamath Falls-Malin	771,197.78	493,381.69	83,177.88	177,600.37	17,037.84
51	West Portland-Hubbard	450,933.04	128,980.04	.....	321,953.00	.....
52	Heppner	1,252,319.07	935,492.89	315,066.35	.....	1,759.83
53	Warm Springs	728,035.00	279,867.00	.....	448,168.00	.....
54	Boardman-Stanfield	301,165.27	185,666.27	.....	115,499.00	.....
55	Halfway	.....	.....	.....	.....	.....
	Undistributed	97,868.85	62,259.99	35,608.86	.....	.....
	Totals	$159,283,787.69	$ 93,484,797.68	$15,006,369.32	$49,768,867.02	$ 1,023,753.67
	Primary maintenance	$ 47,034,228.45	$ 46,779,419.08	$ 85,413.42	$ 167,501.39	$ 1,894.56
	Secondary construction	12,060,349.46	7,518,707.85	389,427.56	4,149,862.05	2,352.00
	Secondary maintenance	6,820,839.07	6,804,548.61	2,404.17	13,886.29	.....
	County road construction	4,510,117.71	2,170,275.15	330,244.05	1,985,628.79	23,969.72
	County road maintenance	387,454.85	386,908.22	546.63	.....	.....
	General purposes	91,607,055.06	91,141,256.27	26,709.26	439,089.53	.....
	Grand totals	$321,703,832.29	$248,285,912.86	$15,841,114.41	$56,524,835.07	$ 1,051,969.95

Table No. 12

EXPENDITURES FOR PRIMARY HIGHWAY MAINTENANCE WORK SUMMARIZED BY HIGHWAYS

Years 1917 to 1942, Inclusive

Kinds of expenditures included are same as included in Table No. 14

Hwy. No.	Highway	Total Amount Expended	Cooperation in Expenditures			
			By State	By County	By Federal Government	By Miscellaneous Contributors
1	Pacific, Jct. City-South	$ 2,282,186.06	$ 2,269,897.97	$ 12,288.09	$	$
1E	Pacific, East	1,430,932.31	1,428,430.89	2,501.42		
1W	Pacific, West	938,096.86	931,898.93	6,197.93		
2	Columbia River	4,205,300.57	4,190,978.81	12,556.40	870.80	894.56
3	Oswego	119,968.45	119,968.45			
4	The Dalles-California	3,131,226.51	3,117,395.23	769.57	13,061.71	
5	John Day	2,068,725.46	2,063,667.47	5,057.99		
6	Old Oregon Trail	4,185,710.67	4,141,826.38	1,270.87	42,613.42	
7	Central Oregon	926,438.88	922,723.10	15.45	3,700.33	
8	Oregon-Washington	443,162.57	437,811.11	5,351.46		
9	Oregon Coast	4,945,887.52	4,909,554.25	4,501.67	30,831.60	1,000.00
10	Wallowa Lake	1,248,738.00	1,248,738.00			
11	Enterprise-Lewiston	144,715.41	144,715.41			
12	Baker-Homestead	332,255.22	331,633.04	622.18		
13	Baker-Unity	261,999.43	261,999.43			
14	Crooked River	89,532.48	89,532.48			
15	McKenzie	1,023,550.68	1,012,251.17		11,299.51	
16	Santiam	607,731.49	600,187.33		7,544.16	
17	McKenzie-Bend	182,097.05	178,441.15		3,655.90	
18	Willamette	344,626.81	344,626.81			
19	Fremont	633,901.76	620,809.93		13,091.83	
20	Klamath Falls-Lakeview	755,898.90	754,249.48		1,649.42	
21	Green Springs	1,017,443.29	1,017,242.52	200.77		
22	Crater Lake	899,053.38	898,710.71		342.67	
23	Dairy-Bonanza	54,266.05	54,266.05			
24	Burns-Crane	109,931.52	109,835.05	96.47		
25	Redwood	365,023.44	365,023.44			
26	Mt. Hood	1,349,301.51	1,343,180.83		6,120.68	
27	Alsea	638,984.30	638,984.30			
28	Pendleton-John Day	700,935.79	700,935.79			
29	Tualatin Valley	347,964.06	337,970.85	9,993.21		
30	Salem-Dallas	254,255.24	254,202.29	52.95		
31	Albany-Corvallis	65,457.77	64,657.77	800.00		
32	Three Rivers	798,249.17	781,311.72	16,937.45		
33	Corvallis-Newport	1,031,432.20	1,028,841.41	320.50	2,270.29	
34	Siuslaw	666,087.02	654,594.71		11,492.31	
35	Coos Bay-Roseburg	1,590,351.93	1,579,455.65	3,838.17	7,058.11	
36	Pendleton-Cold Springs	118,574.29	118,574.29			
37	Wilson River	115,508.82	115,508.82			
38	Oregon Caves	99,687.44	99,687.44			
39	Salmon River	616,243.10	615,942.18	300.92		
40	Beaverton-Hillsdale	48,256.05	46,516.10	1,739.95		
41	Ochoco	736,671.82	736,671.82			
42	Sherman	557,784.69	550,477.53		7,307.16	
43	Monmouth-Independence	25,087.15	25,087.15			
44	Wapinitia	346,894.96	346,894.96			
45	Umpqua	361,723.26	361,723.26			
46	Necanicum	421,374.46	421,374.46			
47	Wolf Creek	422,691.53	422,691.53			
48	John Day-Burns	191,320.19	191,320.19			
49	Lakeview-Burns	185,996.85	185,996.85			
50	Klamath Falls-Malin	360,892.86	360,892.86			
51	West Portland-Hubbard	2,844.38	2,844.38			
52	Heppner	511,706.48	507,114.99		4,591.49	
53	Warm Springs	17,430.41	17,430.41			
54	Boardman-Stanfield	12.08	12.08			
55	Halfway	8,790.97	8,790.97			
	Undistributed	1,693,316.90	1,693,316.90			
	Totals	$47,034,228.45	$46,779,419.08	$ 85,413.42	$167,501.39	$ 1,894.56

Table No. 13

EXPENDITURES FOR PRIMARY HIGHWAY CONSTRUCTION WORK SUMMARIZED BY COUNTIES

Years 1917 to 1942, Inclusive

Kinds of expenditures included are same as included in Table No. 11.

County	Total Amount Expended	Cooperation in Expenditures			
		By State	By County	By Federal Government	By Miscellaneous Contributors
Baker	$ 5,525,694.93	$ 2,646,828.84	$ 1,015,924.69	$ 1,773,954.61	$ 88,986.79
Benton	2,922,589.06	2,039,736.20	372,439.94	501,792.66	8,620.26
Clackamas	5,434,528.05	2,836,919.07	482,535.78	1,975,066.14	140,007.06
Clatsop	7,325,009.75	4,060,289.45	448,340.54	2,816,379.76	.....
Columbia	2,833,594.15	2,371,231.70	12,060.23	448,599.59	1,702.63
Coos	6,463,787.39	3,964,272.07	821,548.46	1,652,292.59	25,674.27
Crook	1,381,667.49	882,320.46	198,071.21	298,775.82	2,500.00
Curry	4,782,085.82	3,217,473.48	227,542.72	1,337,069.62	.....
Deschutes	2,577,022.25	1,334,819.37	152,817.14	1,069,432.28	19,953.46
Douglas	11,593,022.83	7,471,191.13	1,213,134.95	2,874,228.23	34,468.52
Gilliam	2,638,575.29	1,594,023.95	266,278.07	776,273.27	2,000.00
Grant	3,615,901.14	1,897,504.67	188,600.65	1,529,795.82	.....
Harney	2,524,067.45	1,077,438.82	128,701.27	1,317,927.36	.....
Hood River	2,842,431.16	2,396,232.22	283,001.46	128,735.96	34,461.52
Jackson	6,840,885.21	4,049,359.51	533,952.88	2,214,150.64	43,422.18
Jefferson	1,293,560.08	638,293.53	138,482.18	516,044.37	740.00
Josephine	4,174,535.55	3,284,978.00	110,077.78	779,479.77	.....
Klamath	6,749,479.48	3,440,637.17	711,868.30	2,562,442.67	34,531.34
Lake	2,964,935.32	1,662,866.21	233,414.80	1,068,704.31	.....
Lane	9,565,364.18	5,182,540.24	1,784,732.06	2,503,435.69	94,656.19
Lincoln	7,082,403.35	4,829,411.61	212,473.57	2,039,771.20	746.97
Linn	4,519,894.56	2,473,019.79	451,737.03	1,491,512.96	103,624.78
Malheur	3,924,272.04	2,296,656.42	256,725.86	1,340,889.76	30,000.00
Marion	3,149,715.37	1,213,182.82	238,133.29	1,697,328.81	1,070.45
Morrow	1,464,385.32	1,076,282.60	317,758.89	68,584.00	1,759.83
Multnomah	6,641,404.75	3,235,624.42	62,825.83	3,255,807.60	87,146.90
Polk	2,562,775.72	1,817,310.98	155,023.89	589,051.75	1,389.10
Sherman	1,700,108.80	713,120.67	273,903.11	711,337.23	1,747.79
Tillamook	5,524,520.25	3,455,887.67	511,286.51	1,526,302.80	31,043.27
Umatilla	6,318,395.50	3,420,273.41	645,011.90	2,226,548.98	26,561.21
Union	3,661,221.44	2,099,797.50	602,607.02	793,495.76	165,321.16
Wallowa	1,457,082.17	740,129.69	361,995.78	354,956.70	.....
Wasco	5,998,979.20	3,021,400.11	868,761.50	2,098,587.93	10,229.66
Washington	4,747,153.72	3,434,351.45	100,412.78	1,201,135.70	11,253.79
Wheeler	2,552,746.85	1,398,794.92	189,078.49	964,873.44	.....
Yamhill	3,924,334.46	2,204,989.92	435,108.76	1,264,101.24	20,134.54
Undistributed	5,607.61	5,607.61	.....	.....	.....
Totals	$159,283,787.69	$ 93,484,797.68	$15,006,369.32	$49,768,867.02	$ 1,023,753.67
Primary maintenance	$ 47,034,228.45	$ 46,779,419.08	$ 85,413.42	$ 167,501.39	$ 1,894.56
Secondary construction	12,060,349.46	7,518,707.85	389,427.56	4,149,862.05	2,352.00
Secondary maintenance	6,820,839.07	6,804,548.61	2,404.17	13,886.29	.....
County road construction	4,510,117.71	2,170,275.15	330,244.05	1,985,628.79	23,969.72
County road maintenance	387,454.85	386,908.22	546.63	.....	.....
General purposes	91,607,055.06	91,141,256.27	26,709.26	439,089.53	.....
Grand totals	$321,703,832.29	$248,285,912.86	$15,841,114.41	$56,524,835.07	$ 1,051,969.95

Table No. 14

EXPENDITURES FOR PRIMARY HIGHWAY MAINTENANCE WORK SUMMARIZED BY COUNTIES

Years 1917 to 1942, Inclusive

This table gives the totals of expenditures made for maintenance work in each of the several counties during the 26-year period ending June 30, 1942. It includes all expenditures for special maintenance and general maintenance.

County	Total Amount Expended	Cooperation in Expenditures			
		By State	By County	By Federal Government	By Miscellaneous Contributors
Baker	$1,843,084.47	$1,842,462.29	$ 622.18	$	$ .....
Benton	1,233,208.53	1,232,892.72	315.81	.....	.....
Clackamas	1,221,419.21	1,221,178.24	240.97	.....	.....
Clatsop	1,361,019.48	1,351,328.81	8,796.11	.....	894.56
Columbia	667,426.21	667,426.21	.....	.....	.....
Coos	2,160,066.76	2,122,756.28	6,728.62	30,581.86	.....
Crook	487,682.28	487,682.28	.....	.....	.....
Curry	1,290,530.45	1,286,152.59	205.18	4,172.68	.....
Deschutes	1,274,300.16	1,262,053.81	240.10	12,006.25	.....
Douglas	2,308,406.46	2,303,623.24	4,783.22	.....	.....
Gilliam	1,093,569.52	1,091,270.38	2,299.14	.....	.....
Grant	1,051,780.26	1,049,350.09	2,430.17	.....	.....
Harney	618,122.00	618,010.08	111.92	.....	.....
Hood River	1,200,618.28	1,194,497.60	.....	6,120.68	.....
Jackson	1,907,420.56	1,902,873.23	4,547.33	.....	.....
Jefferson	494,142.05	488,321.13	.....	5,820.92	.....
Josephine	808,090.07	806,448.48	1,641.59	.....	.....
Klamath	3,027,044.22	3,019,412.24	48.52	7,583.46	.....
Lake	975,196.07	960,454.82	.....	14,741.25	.....
Lane	2,207,144.95	2,185,708.97	1,899.06	19,536.92	.....
Lincoln	1,579,391.86	1,573,665.90	320.50	5,405.46	.....
Linn	919,494.59	910,877.85	2,467.70	6,149.04	.....
Malheur	1,247,805.50	1,247,345.74	459.76	.....	.....
Marion	519,655.32	519,444.91	210.41	.....	.....
Morrow	947,083.97	939,515.75	2,976.73	4,591.49	.....
Multnomah	964,643.51	964,643.51	.....	.....	.....
Polk	722,744.73	722,145.66	599.07	.....	.....
Sherman	664,826.52	657,519.36	.....	7,307.16	.....
Tillamook	1,632,316.95	1,622,537.36	8,779.59	.....	1,000.00
Umatilla	2,507,243.16	2,458,046.71	5,712.23	43,484.22	.....
Union	1,813,247.68	1,812,732.99	514.69	.....	.....
Wallowa	740,206.70	740,206.70	.....	.....	.....
Wasco	1,686,042.43	1,685,265.82	776.61	.....	.....
Washington	438,578.51	427,037.76	11,540.75	.....	.....
Wheeler	710,054.26	708,360.54	1,693.72	.....	.....
Yamhill	1,017,467.60	1,003,015.86	14,451.74	.....	.....
Undistributed	1,693,153.17	1,693,153.17	.....	.....	.....
Totals	$47,034,228.45	$46,779,419.08	$ 85,413.42	$ 167,501.39	$ 1,894.56

Table No. 15

EXPENDITURES FOR SECONDARY HIGHWAY CONSTRUCTION WORK SUMMARIZED BY COUNTIES

To June 30, 1942

This table gives the totals of the expenditures made for secondary highway construction work in each of the several counties to June 30, 1942. It includes expenditures for new construction, additions and betterments, surveys, engineering county construction and state expenditures in connection with forest road work.

County	Total Amount Expended	Cooperation in Expenditures			
		By State	By County	By Federal Government	By Miscellaneous Contributors
Baker	$ 109,880.96	$ 104,687.96	$	$ 5,193.00	$ .....
Benton	291,818.78	199,884.12	2,350.00	89,584.66	.....
Clackamas	639,073.03	386,787.48	47,825.95	204,459.60	.....
Clatsop	245,729.51	155,364.04	9,070.98	81,294.49	.....
Columbia	366,339.15	233,490.57	.....	132,848.58	.....
Coos	609,375.18	282,993.33	2,000.00	324,381.85	.....
Crook	274,222.57	190,815.28	34,411.29	48,996.00	.....
Curry	33,233.16	12,809.56	.....	20,423.60	.....
Deschutes	232,796.72	196,551.53	36,245.19	.....	.....
Douglas	211,986.67	196,496.86	.....	15,489.81	.....
Gilliam	123,462.69	80,442.97	.....	43,019.72	.....
Grant	142,164.84	78,401.09	9,086.75	54,677.00	.....
Harney	125,804.88	102,608.28	23,196.60	.....	.....
Hood River	215,113.80	152,971.12	.....	62,142.68	.....
Jackson	702,678.19	602,139.57	.....	100,538.62	.....
Jefferson	48,811.63	33,111.63	.....	15,700.00	.....
Josephine	190,024.03	50,933.42	.....	139,090.61	.....
Klamath	339,771.77	64,001.44	70,558.62	205,211.71	.....
Lake	81,264.78	72,963.33	.....	8,301.45	.....
Lane	861,134.32	671,844.06	24,351.96	162,586.30	2,352.00
Lincoln	264,962.18	202,826.28	.....	62,135.90	.....
Linn	395,412.49	265,732.73	23,000.00	106,679.76	.....
Malheur	967,614.30	386,350.27	.....	581,264.03	.....
Marion	597,703.84	364,462.67	.....	233,241.17	.....
Morrow	316,815.36	176,914.69	.....	139,900.67	.....
Multnomah	963,146.14	429,250.98	.....	533,895.16	.....
Polk	397,068.13	119,316.36	.....	277,751.77	.....
Sherman	42,384.95	42,384.95	.....	.....	.....
Tillamook	141,764.69	119,805.90	.....	21,958.79	.....
Umatilla	847,061.58	659,123.18	91,855.87	96,082.53	.....
Union	346,375.24	260,897.24	.....	85,478.00	.....
Wallowa	103,161.61	34,409.71	.....	68,751.90	.....
Wasco	65,503.98	60,042.55	5,461.43	.....	.....
Washington	387,625.09	218,626.75	.....	168,998.34	.....
Wheeler	55,792.54	39,846.54	5,000.00	10,946.00	.....
Yamhill	323,270,68	269,419.41	5,012.92	48,838.35	.....
Totals	$12,060,349.46	$7,518,707.85	$ 389,427.56	$4,149,862.05	$ 2,352.00

Table No. 16

EXPENDITURES FOR SECONDARY HIGHWAY MAINTENANCE WORK SUMMARIZED BY COUNTIES

To June 30, 1942

This table gives the totals of the expenditures made for secondary highway maintenance work in each of the several counties to June 30, 1942. It includes expenditures for special maintenance and general maintenance.

County	Total Amount Expended	Cooperation in Expenditures			
		By State	By County	By Federal Government	By Miscellaneous Contributors
Baker	$ 155,547.28	$ 155,513.55	$ 33.73	$	$ .....
Benton	107,322.00	107,322.00	.....	.....	.....
Clackamas	430,194.61	430,194.61	.....	.....	.....
Clatsop	232,224.13	226,306.88	.....	5,917.25	.....
Columbia	197,762.86	197,762.86	.....	.....	.....
Coos	322,151.35	322,151.35	.....	.....	.....
Crook	100,369.87	100,369.87	.....	.....	.....
Curry	8,380.56	8,380.56	.....	.....	.....
Deschutes	201,307.10	201,307.10	.....	.....	.....
Douglas	221,572.01	221,572.01	.....	.....	.....
Gilliam	39,330.00	39,330.00	.....	.....	.....
Grant	36,589.03	36,589.03	.....	.....	.....
Harney	84,068.47	84,068.47	.....	.....	.....
Hood River	63,586.08	63,586.08	.....	.....	.....
Jackson	308,263.23	303,450.11	275.14	4,537.98	.....
Jefferson	13,360.71	13,360.71	.....	.....	.....
Josephine	100,496.21	99,044.24	.....	1,451.97	.....
Klamath	423,422.53	423,422.53	.....	.....	.....
Lake	45,657.03	45,657.03	.....	.....	.....
Lane	440,188.54	440,080.54	108.00	.....	.....
Lincoln	172,305.63	172,305.63	.....	.....	.....
Linn	250,930.13	250,930.13	.....	.....	.....
Malheur	239,018.18	239,018.18	.....	.....	.....
Marion	309,845.46	309,845.46	.....	.....	.....
Morrow	108,921.92	108,921.92	.....	.....	.....
Multnomah	42,990.79	42,990.79	.....	.....	.....
Polk	324,891.05	324,891.05	.....	.....	.....
Sherman	41,848.21	41,848.21	.....	.....	.....
Tillamook	32,235.11	32,235.11	.....	.....	.....
Umatilla	582,817.06	578,850.67	1,987.30	1,979.09	.....
Union	176,985.78	176,985.78	.....	.....	.....
Wallowa	62,476.75	62,476.75	.....	.....	.....
Wasco	32,363.13	32,363.13	.....	.....	.....
Washington	362,476.75	362,476.75	.....	.....	.....
Wheeler	86,048.52	86,048.52	.....	.....	.....
Yamhill	268,734.99	268,734.99	.....	.....	.....
Undistributed	194,156.01	194,156.01	.....	.....	.....
Totals	$6,820,839.07	$6,804,548.61	$ 2,404.17	$ 13,886.29	$ .....

Table No. 17

EXPENDITURES FOR COUNTY ROAD CONSTRUCTION WORK SUMMARIZED BY COUNTIES

To June 30, 1942

This table gives the totals of the expenditures made under direct supervision of State Highway Commission for county road construction work in each of the several counties to June 30, 1942. It includes expenditures for new construction and surveys in connection with Federal Aid Secondary projects and expenditures for construction of abandoned sections of state highways taken over by the counties.

County	Total Amount Expended	Cooperation in Expenditures			
		By State	By County	By Federal Government	By Miscellaneous Contributors
Baker	$ 29,519.65	$ 23,794.67	$ 5,724.98	$	$ .....
Benton	40,074.86	24,182.86	.....	15,892.00	.....
Clackamas	317,590.72	200,723.37	24,102.11	92,528.35	236.89
Clatsop	119,632.60	84,811.81	132.79	34,688.00	.....
Columbia	42,724.71	7,735.35	116.36	34,873.00	.....
Coos	2,371.91	2,371.91	.....	.....	.....
Crook	.....	.....	.....	.....	.....
Curry	1,346.44	1,346.44	.....	.....	.....
Deschutes	199,979.50	147,411.93	15,551.57	36,366.00	650.00
Douglas	283,865.36	188,652.35	7,295.68	87,917.33	.....
Gilliam	7,936.65	.....	7,936.65	.....	.....
Grant	.....	.....	.....	.....	.....
Harney	.....	.....	.....	.....	.....
Hood River	324.09	324.09	.....	.....	.....
Jackson	61,974.25	48,094.25	.....	13,880.00	.....
Jefferson	13,165.82	3,010.60	3,800.00	6,355.22	.....
Josephine	14,806.50	2,732.50	.....	12,074.00	.....
Klamath	209,998.01	53,321.71	.....	146,436.15	10,240.15
Lake	103,553.91	32,611.37	23,287.43	46,629.43	1,025.68
Lane	54,117.63	Cr. 27,564.42	58,041.05	23,641.00	.....
Lincoln	5,206.30	3,869.23	.....	1,337.07	.....
Linn	149,048.59	65,469.38	44,081.21	39,498.00	.....
Malheur	60,895.81	20,872.23	13,996.58	26,027.00	.....
Marion	479,199.53	351,853.40	22,600.20	104,745.93	.....
Morrow	2,515.77	2,515.77	.....	.....	.....
Multnomah	885,044.69	170,131.47	5,701.90	697,394.32	11,817.00
Polk	68,541.93	23,721.13	2,104.80	42,716.00	.....
Sherman	153,698.85	76,410.93	419.50	76,868.42	.....
Tillamook	172,269.50	81,826.34	26,484.69	63,958.47	.....
Umatilla	38,762.92	33,911.92	4,851.00	.....	.....
Union	76,387.55	37,408.93	.....	38,978.62	.....
Wallowa	98,442.20	44,616.60	10,770.60	43,055.00	.....
Wasco	186,936.22	100,095.38	21,933.27	64,907.57	.....
Washington	374,503.76	222,047.76	14,322.79	138,133.21	.....
Wheeler	23,486.88	13,380.88	.....	10,106.00	.....
Yamhill	232,194.60	128,583.01	16,988.89	86,622.70	.....
Totals	$4,510,117.71	$2,170,275.15	$ 330,244.05	$1,985,628.79	$ 23,969.72

Table No. 18

EXPENDITURES FOR COUNTY ROAD MAINTENANCE WORK SUMMARIZED BY COUNTIES

To June 30, 1942

This table gives the totals of the expenditures made under direct supervision of State Highway Commission for county road maintenance work in each of the several counties to June 30, 1942. The expenditures are principally for maintenance of county road signs and for maintenance of certain sections of county roads which, at the time the expenditures were made, were on the state highway system.

County	Total Amount Expended	Cooperation in Expenditures			
		By State	By County	By Federal Government	By Miscellaneous Contributors
Baker	$ 57,898.83	$ 57,764.96	$ 133.87	$	$ .....
Benton	3,403.36	3,403.36	.....	.....	.....
Clackamas	11,205.20	11,205.20	.....	.....	.....
Clatsop	42,823.74	42,823.74	.....	.....	.....
Columbia	2,577.15	2,577.15	.....	.....	.....
Coos	989.16	989.16	.....	.....	.....
Crook	461.69	461.69	.....	.....	.....
Curry	260.29	260.29	.....	.....	.....
Deschutes	2,532.41	2,532.41	.....	.....	.....
Douglas	5,258.69	5,258.69	.....	.....	.....
Gilliam	863.52	863.52	.....	.....	.....
Grant	773.22	773.22	.....	.....	.....
Harney	858.35	858.35	.....	.....	.....
Hood River	943.46	943.46	.....	.....	.....
Jackson	21,274.99	21,274.99	.....	.....	.....
Jefferson	551.15	551.15	.....	.....	.....
Josephine	4,238.25	4,238.25	.....	.....	.....
Klamath	10,228.47	10,228.47	.....	.....	.....
Lake	1,331.24	1,331.24	.....	.....	.....
Lane	14,982.94	14,982.94	.....	.....	.....
Lincoln	1,558.46	1,558.46	.....	.....	.....
Linn	42,863.29	42,450.53	412.76	.....	.....
Malheur	2,188.25	2,188.25	.....	.....	.....
Marion	17,680.87	17,680.87	.....	.....	.....
Morrow	2,016.68	2,016.68	.....	.....	.....
Multnomah	36,316.37	36,316.37	.....	.....	.....
Polk	6,117.73	6,117.73	.....	.....	.....
Sherman	1,113.40	1,113.40	.....	.....	.....
Tillamook	663.94	663.94	.....	.....	.....
Umatilla	7,642.84	7,642.84	.....	.....	.....
Union	1,566.85	1,566.85	.....	.....	.....
Wallowa	1,023.77	1,023.77	.....	.....	.....
Wasco	3,611.65	3,611.65	.....	.....	.....
Washington	71,543.19	71,543.19	.....	.....	.....
Wheeler	470.72	470.72	.....	.....	.....
Yamhill	3,140.35	3,140.35	.....	.....	.....
Undistributed	4,540.38	4,540.38	.....	.....	.....
Totals	$ 387,454.85	$ 386,908.22	$ 546.63	$	$ .....

Table No. 19

FOREST HIGHWAY EXPENDITURES ON STATE HIGHWAY ROUTES CLASSIFIED BY COUNTIES

Years 1917 to 1941, Inclusive

In this table are given the expenditures that have been made in connection with forest highway construction work on the state highway system. This work was supervised by the United States Public Roads Administration, and the amounts of Federal Government expenditures and county expenditures here shown are as reported by that bureau. The state expenditures shown are also included in the foregoing tables Nos. 11, 13 and 15, but the Federal Government and county expenditures are not included in that table. For a classification of these expenditures by highways see table No. 20.

County	Total Amount Expended	Cooperation in Expenditures		
		By State	By County	By Federal Government
Baker	$ 186,978.85	$ 44,995.09	$ 584.00	$ 141,399.76
Clackamas	994,277.40	533,880.22	.....	460,397.18
Coos	231,790.61	.....	83,000.00	148,790.61
Crook	126,018.04	39,634.17	26,875.00	59,508.87
Curry	438,493.25	116,289.11	30,000.00	292,204.14
Deschutes	289,617.75	149,046.57	5,000.00	135,571.18
Douglas	1,499,281.67	314,053.51	336,637.90	848,590.26
Grant	1,998,452.05	159,490.25	250,046.25	1,588,915.55
Harney	406,575.63	.....	65,000.00	341,575.63
Hood River	740,419.22	303,993.94	.....	436,425.28
Jackson	1,138,124.86	296,095.20	3,438.81	838,590.85
Jefferson	256,702.14	56,000.00	13,000.00	187,702.14
Josephine	504,894.27	294,433.59	17,522.99	192,937.69
Klamath	827,129.95	228,598.60	172,454.97	426,076.38
Lake	834,781.21	211,482.27	.....	623,298.94
Lane	5,713,251.86	1,106,616.47	724,547.45	3,882,087.94
Lincoln	2,794,151.33	884,418.77	315,000.00	1,594,732.56
Linn	2,377,835.10	.....	*202,014.00	2,175,821.10
Marion	442,147.82	.....	173,586.00	268,561.82
Morrow	140,057.14	.....	75,000.00	65,057.14
Multnomah	276,762.92	41,150.00	.....	235,612.92
Tillamook	1,062,403.75	333,387.67	18,624.69	710,391.39
Umatilla	893,404.87	155,287.23	145,718.32	592,399.32
Union	392,199.86	.....	.....	392,199.86
Wallowa	617,708.53	67,951.65	39,210.35	510,546.53
Wasco	516,220.94	169,289.06	25,000.00	321,931.88
Wheeler	563,316.43	105,060.12	29,900.00	428,356.31
Totals	$26,262,997.45	$5,611,153.49	$2,752,160.73	$17,899,683.23

* Includes $84,014 Marion county expenditures on North Santiam Highway in Linn county.

Table No. 20

FOREST HIGHWAY EXPENDITURES ON STATE HIGHWAY ROUTES CLASSIFIED BY HIGHWAYS

Years 1917 to 1941, Inclusive

In this table are given the expenditures that have been made in connection with forest highway construction work on the state highway system. This work was supervised by the United States Public Roads Administration, and the amounts of Federal Government expenditures and county expenditures here shown are as reported by that bureau. The state expenditures shown are also included in the foregoing tables Nos. 11, 13 and 15, but the Federal Government and county expenditures are not included in that table. For a classification of these expenditures by counties see table No. 19.

Hiwy No.	Highway	Total Amount Expended	Cooperation in Expenditures: By State	By County	By Federal Government
1	Pacific, Junction City-South	$ 309,776.86	$ 182,776.86	$ 23,000.00	$ 104,000.00
2	Columbia River	512,233.38	92,500.00	.....	419,733.38
4	The Dalles-California	639,690.56	178,806.28	149,592.81	311,291.47
5	John Day	715,356.30	174,485.34	162,110.76	378,760.20
9	Oregon Coast	3,054,822.59	806,752.01	495,163.36	1,752,907.22
11	Enterprise-Lewiston	497,746.61	67,951.65	39,210.35	390,584.61
15	McKenzie	898,606.12	429,278.06	20,000.00	449,328.06
16	Santiam	1,850,093.93	56,000.00	131,000.00	1,663,093.93
18	Willamette	2,334,436.55	171,501.74	61,998.26	2,100,936.55
19	Fremont	290,559.18	879.37	.....	289,679.81
20	Klamath Falls-Lakeview	631,657.70	226,919.50	.....	404,738.20
22	Crater Lake	687,637.67	301,060.92	26,300.97	360,275.78
25	Redwood	194,160.63	130,121.32	9,522.99	54,516.32
26	Mt. Hood	1,262,804.15	577,227.85	.....	685,576.30
27	Alsea	1,019,452.70	410,818.40	165,000.00	443,634.30
28	Pendleton-John Day	1,286,530.54	185,287.23	202,218.32	899,024.99
32	Three Rivers	423,943.55	149,528.51	18,624.69	255,790.35
34	Siuslaw	1,962,790.55	500,833.19	467,688.75	994,268.61
38	Oregon Caves	310,733.64	164,312.27	8,000.00	138,421.37
39	Salmon River	1,034,305.79	180,000.00	.....	854,305.79
41	Ochoco	362,116.68	144,694.29	31,775.00	185,647.39
44	Wapinitia	737,299.22	270,585.37	25,000.00	441,713.85
45	Umpqua	323,273.90	.....	128,001.65	195,272.25
48	John Day-Burns	1,292,340.64	.....	97,019.49	1,195,321.15
53	Warm Springs	15,343.73	.....	.....	15,343.73
162	North Santiam	1,295,359.49	.....	257,600.00	1,037,759.49
181	Siletz	147,786.45	.....	30,000.00	117,786.45
230	Tiller-Trail	993,834.25	58,333.33	103,333.33	832,167.59
321	Heppner-Spray	467,274.93	.....	100,000.00	367,274.93
330	Weston-Elgin	583,383.78	.....	.....	583,383.78
350	Little Sheep Creek	119,961.92	.....	.....	119,961.92
421	Klamath Lake	7,683.46	.....	.....	7,683.46
.....	Timberline (State share only)	.....	108,000.00	.....	Cr. 108,000.00
.....	Cascade Lakes (State share only)	.....	42,500.00	.....	Cr. 42,500.00
	Totals	$26,262,997.45	$5,611,153.49	$2,752,160.73	$17,899,683.23

Table No. 21

STATISTICS PERTAINING TO FOREST HIGHWAY WORK ON STATE HIGHWAYS

The statistics here given apply to highway work in the state of Oregon performed under the supervision of the Public Roads Administration. All of the work included is upon state highways at points where these highways are in or adjacent to National forests. The work is financed under co-operative agreements between the Federal Government, the state and the counties of the state, the federal funds being Oregon's proportionate share of funds annually appropriated by the Congress for forest road work.

The amounts of county and Federal Government Expenditures here given, and the mileages of work performed, are as reported by the Public Roads Administration. The amounts of state expenditures are as shown by the disbursement records of the State Highway Commission.

EXPENDITURES ON FOREST HIGHWAY WORK

Year	Expenditures			
	State Funds	County Funds	Government Funds	Total
1918-1919-1920	$ 809,261.58	$ 102,271.45	$ 656,708.64	$ 1,568,241.67
1921-1922	724,970.53	67,142.21	836,765.18	1,628,877.92
1923-1924	1,092,660.31	823,942.05	1,908,176.76	3,824,779.12
1925-1926	759,762.58	261,961.69	742,598.02	1,764,222.29
1927	147,859.76	105,611.36	325,542.44	579,013.56
1928	103,084.09	54,543.79	257,246.68	414,874.56
1929	82,000.00	32,000.00	421,609.32	535,609.32
1930	696,986.98	100,000.00	422,052.47	1,219,039.45
1931	653,385.58	215,000.00	1,534,775.71	2,403,161.29
1932	34,430.75	192,743.64	552,166.73	779,341.12
1933	87,217.99	*325,302.11	*1,801,604.45	*2,214,124.55
1934	28,416.93	Cr. 6,000.00	1,364,551.40	1,386,968.33
1935	Cr. 32,547.32	†282,206.16	†2,119,647.22	†2,369,306.06
1936	124,030.12	80,969.88	937,098.13	1,142,098.13
1937	93,409.12	19,090.88	1,432,677.71	1,545,177.71
1938	Cr. 114,275.51	95,375.51	942,818.01	923,918.01
1939	35,000.00	.....	922,267.77	957,267.77
1940	.....	.....	578,318.91	578,318.91
1941	285,500.00	.....	143,157.68	428,657.68
Totals	$ 5,611,153.49	$ 2,752,160.73	$17,899,683.23	$26,262,997.45

* Includes prior expenditures on John Day-Burns Highway, which highway was taken into primary system in 1933.

† Includes prior expenditures on Secondary Highways which have been taken into the Forest Highway Table during 1935.

Table No. 21—Continued

MILEAGES OF WORK COMPLETED ON FOREST HIGHWAY PROJECTS

Year	Concrete Paving (Miles)	Grading (Miles)	Grade Widening (Miles)	Rock Surfacing (Miles)	Resurfacing (Miles)	Oiled Surface (Miles)	Bituminous Macadam (Miles)
1918	.....	4.30	.....	.....	.....	.....	.....
1919	.....	62.90	.....	.....	.....	.....	.....
1920	.....	56.10	.....	22.59	.....	.....	.....
1921	.....	20.68	.....	38.24	.....	.....	.....
1922	.....	15.69	.....	22.37	.....	.....	.....
1923	.....	61.00	.....	87.92	.....	.....	.....
1924	.....	153.37	.....	74.62	.....	.....	.....
1925	.....	50.70	.....	99.94	.....	.....	.....
1926	.....	52.32	.....	41.41	.....	.....	.....
1927	.....	25.10	14.70	53.50	.....	.....	.....
1928	.....	16.80	7.00	17.60	.....	.....	.....
1929	.....	18.80	0.20	6.00	.....	.....	.....
1930	.....	25.04	5.31	25.88	.....	.....	.....
1931	.....	46.14	15.15	21.35	.....	.....	.....
1932	.....	13.61	1.00	28.36	.....	.....	.....
1933	.....	28.33	.....	64.34	9.97	.....	24.94
1934	.....	14.76	4.89	17.11	0.97	53.51	24.65
1935	.....	7.43	0.95	.....	.....	30.71	.....
1936	.....	25.71	16.13	30.06	13.53	.....	.....
1937	0.18	4.61	13.24	36.33	5.40	23.22	37.26
1938	.....	2.67	20.37	8.36	14.95	7.10	8.36
1939	.....	2.58	5.97	24.66	13.12	20.69	16.89
1940	.....	4.18	20.82	37.53	8.88	40.34	6.07
1941	.....	.....	.....	.....	.....	.....	.....
Totals	0.18	712.82	125.73	758.17	66.82	175.57	118.17

Table No. 22

COUNTY DISBURSEMENTS FOR ROAD PURPOSES

1937 to 1941, Inclusive

County	1937	1938	1939	1940	1941
Baker	$ 66,004.99	$ 123,036.29	$ 122,300.75	$ 76,322.27	$ 91,503.61
Benton	88,624.05	72,474.37	90,051.08	104,439.05	100,801.97
Clackamas	230,470.26	281,260.84	290,678.93	207,770.92	242,870.61
Clatsop	221,146.20	159,892.21	140,446.83	163,435.19	209,355.94
Columbia	89,626.81	102,553.94	114,316.50	128,614.00	130,481.95
Coos	236,551.05	231,924.59	233,445.77	205,588.80	206,364.42
Crook	22,669.59	26,996.55	32,051.93	34,749.45	*35,000.00
Curry	19,528.75	18,784.52	11,010.67	15,553.90	19,494.90
Deschutes	25,731.99	48,856.79	45,196.17	48,102.88	46,847.11
Douglas	183,526.75	202,248.26	178,249.39	188,252.66	211,844.03
Gilliam	35,746.68	34,061.84	25,260.57	32,656.13	34,178.39
Grant	29,035.48	51,773.07	44,429.56	54,385.60	61,075.80
Harney	34,480.53	32,187.42	33,571.69	41,797.07	46,031.29
Hood River	60,587.00	56,252.42	56,549.32	52,783.43	51,839.54
Jackson	165,484.38	186,688.13	187,029.74	195,314.33	236,886.32
Jefferson	10,734.21	9,196.47	5,614.46	11,027.15	12,436.49
Josephine	68,211.79	86,077.14	66,768.26	69,895.87	75,351.76
Klamath	103,073.96	143,352.72	118,489.03	119,745.08	164,666.29
Lake	42,122.07	50,236.93	54,919.48	51,843.96	39,973.14
Lane	279,341.45	283,595.70	298,949.34	405,703.31	427,449.15
Lincoln	65,035.24	69,003.38	49,052.51	76,002.27	70,814.16
Linn	421,787.61	470,029.33	356,482.74	402,895.09	425,746.26
Malheur	45,935.20	49,656.13	62,011.20	72,338.01	18,183.38
Marion	315,604.99	315,604.99	312,907.78	342,503.05	281,906.68
Morrow	49,510.75	54,429.26	61,506.00	65,691.23	66,084.31
Multnomah	659,231.64	730,542.56	766,632.89	724,342.32	831,526.31
Polk	77,846.21	113,197.88	106,703.35	112,373.08	120,578.14
Sherman	37,581.89	28,267.62	27,048.65	30,750.00	32,325.00
Tillamook	98,122.50	131,939.84	108,858.54	*110,000.00	*110,000.00
Umatilla	140,663.45	177,445.02	155,800.91	153,820.00	180,350.34
Union	81,661.27	104,726.85	132,022.67	167,208.10	161,555.60
Wallowa	49,378.44	55,236.99	63,115.55	49,929.87	72,423.23
Wasco	106,583.02	125,237.55	120,191.24	104,776.81	103,504.13
Washington	207,814.86	271,121.85	241,486.19	258,049.41	288,120.88
Wheeler	13,351.97	15,046.52	10,083.83	6,761.67	14,546.63
Yamhill	126,831.22	153,039.56	123,468.16	151,852.63	197,358.14
Totals	$4,509,638.25	$5,065,975.53	$4,846,701.68	$5,037,274.59	$5,419,475.90

* These are estimated expenditures, as no reports were received from the counties.

Table No. 23

COUNTY BONDS AND WARRANT INDEBTEDNESS IN CONNECTION WITH ROADS AND BRIDGES

July 1, 1942

The information contained in this table was compiled by the State Treasurer.

County	Bonds Outstanding	Road Warrants Outstanding	Total Road and Bridge Debt	Sinking Fund	Net Road and Bridge Debt
Baker	$ 500,000.00	$	$ 500,000.00	$ 302,774.72	$ 197,225.28
Benton	47,000.00	.....	47,000.00	36,097.27	10,902.73
Clackamas	430,000.00	.....	430,000.00	100,000.00	330,000.00
Clatsop	.....	.....	.....	.....	.....
Columbia	.....	.....	.....	.....	.....
Coos	603,000.00	.....	603,000.00	240,363.74	362,636.26
Crook	69,000.00	.....	69,000.00	11,515.88	57,484.12
Curry	47,000.00	.....	47,000.00	33,639.48	13,360.52
Deschutes	11,000.00	.....	11,000.00	373.10	10,626.90
Douglas	.....	.....	.....	.....	.....
Gilliam	85,000.00	.....	85,000.00	22,099.69	62,900.31
Grant	267,000.00	28,014.70	295,014.70	51,544.72	243,469.98
Harney	60,000.00	.....	60,000.00	1,500.00	58,500.00
Hood River	.....	.....	.....	.....	.....
Jackson	133,000.00	.....	133,000.00	132,002.43	997.57
Jefferson	.....	.....	.....	.....	.....
Josephine	.....	.....	.....	.....	.....
Klamath	393,700.00	.....	393,700.00	120,313.80	273,386.20
Lake	.....	.....	.....	.....	.....
Lane	329,000.00	.....	329,000.00	11,715.00	317,285.00
Lincoln	.....	.....	.....	.....	.....
Linn	.....	.....	.....	.....	.....
Malheur	.....	.....	.....	.....	.....
Marion	.....	.....	.....	.....	.....
Morrow	297,500.00	.....	297,500.00	29,709.04	267,790.96
Multnomah	9,209,500.00	.....	9,209,500.00	51,000.00	9,158,500.00
Polk	.....	.....	.....	.....	.....
Sherman	.....	.....	.....	.....	.....
Tillamook	.....	.....	.....	.....	.....
Umatilla	.....	.....	.....	.....	.....
Union	.....	.....	.....	.....	.....
Wallowa	.....	.....	.....	.....	.....
Wasco	.....	.....	.....	.....	.....
Washington	.....	.....	.....	.....	.....
Wheeler	119,500.00	11,270.33	130,770.33	27,428.81	103,341.52
Yamhill	.....	.....	.....	.....	.....
Totals	$12,601,200.00	$ 39,285.03	$12,640,485.03	$1,172,077.68	$11,468,407.35

Table No. 24

APPORTIONMENT TO COUNTIES OF MOTOR VEHICLE FEES

1920 to 1942, Inclusive

Prior to 1917, the total net revenues from motor vehicle license fees were reverted to the counties; from 1917 to 1919, inclusive, the entire net fees were reverted to the state highway fund; from 1920 to January 1, 1930, inclusive, one-quarter of the net fees were apportioned to the counties, and three-quarters to the state highway fund; and from January 1, 1930, to June 30, 1933, one-third of the net fees were apportioned to the counties and two-thirds to the state highway fund. The net revenues from motor transportation fees, from the beginning of the act authorizing the collection of such fees in 1927, to June 30, 1933, were apportioned one-quarter to the counties and three-quarters to the state highway fund. Subsequent to June 30, 1933, the entire net revenues from both sources were deposited into the state highway fund. During the four-year period from 1933 to 1936, the counties received $1,600,000 yearly. Subsequent to 1936, the yearly apportionment has been increased to 15.7 per cent of the total net state highway income, but to be not less than $2,000,000.

	Direct Apportionment 1920 to 1933		Apportionment From Highway Fund 1933 to 1942		
County	Motor Vehicle Fees	Motor Transportation Fees	$1,600,000 Yearly 1933 to 1936	15.7% of Total Highway Income 1937 to 1942	Total Apportionment From Highway Fund
Baker	$ 271,754.78	$ 6,663.10	$ 93,638.00	$ 205,906.14	$ 299,544.14
Benton	331,147.52	7,987.50	117,842.04	250,173.97	368,016.01
Clackamas	781,725.30	17,959.23	278,809.32	631,524.48	910,333.80
Clatsop	381,029.53	8,228.79	127,276.44	282,108.49	409,384.93
Columbia	287,812.38	7,134.75	105,411.28	236,287.57	341,698.85
Coos	493,068.89	11,845.18	173,731.72	384,580.38	558,312.10
Crook	61,877.70	1,479.01	19,236.08	55,508.14	74,744.22
Curry	55,264.62	1,387.94	21,634.16	50,371.63	72,005.79
Deschutes	292,763.81	7,227.86	97,901.56	229,038.57	326,940.13
Douglas	418,357.19	9,973.09	142,054.40	310,679.49	452,733.89
Gilliam	76,368.30	1,672.68	21,404.16	43,541.04	64,945.20
Grant	82,504.63	2,387.80	34,797.88	81,885.50	116,683.38
Harney	75,715.98	2,497.05	34,515.00	73,507.63	108,022.63
Hood River	214,944.28	4,855.61	71,699.00	155,759.57	227,458.57
Jackson	670,552.49	16,941.41	252,936.96	527,987.05	780,924.01
Jefferson	40,510.97	928.18	12,348.36	26,195.19	38,543.55
Josephine	215,424.40	5,742.57	80,790.32	196,696.72	277,487.04
Klamath	533,146.70	16,532.94	231,038.12	541,529.50	772,567.62
Lake	87,509.63	2,510.80	35,220.00	84,803.51	120,023.51
Lane	949,858.11	23,323.29	340,195.88	811,583.38	1,151,779.26
Lincoln	119,949.78	3,513.73	50,258.88	136,244.20	186,503.08
Linn	480,864.10	10,543.08	160,688.80	377,065.29	537,754.09
Malheur	159,267.93	4,852.82	67,642.48	188,295.20	255,937.68
Marion	1,164,524.17	26,736.54	413,578.68	947,313.26	1,360,891.94
Morrow	95,094.79	2,171.69	29,518.60	61,226.60	90,745.20
Multnomah	6,838,588.80	159,298.75	2,414,251.52	4,650,794.25	7,065,045.77
Polk	285,457.90	6,519.86	99,625.96	207,604.79	307,230.75
Sherman	85,064.85	1,539.46	20,321.28	41,641.15	61,962.43
Tillamook	234,090.63	5,476.32	80,694.48	166,734.52	247,429.00
Umatilla	541,729.19	11,874.48	176,309.44	371,432.21	547,741.65
Union	307,007.47	7,487.59	110,955.96	228,765.73	339,721.69
Wallowa	114,583.55	2,664.43	33,905.68	80,943.35	114,849.03
Wasco	271,209.65	6,052.11	90,653.76	185,933.47	276,587.23
Washington	567,299.56	12,856.13	195,407.96	457,490.82	652,898.78
Wheeler	41,761.62	1,162.79	15,690.96	34,934.52	50,625.48
Yamhill	426,137.42	9,784.23	148,014.88	334,858.32	482,873.20
Totals	$18,053,968.62	$ 429,812.79	$6,400,000.00	*$13,650,945.63	$20,050,945.63

* Includes the July and December, 1942, apportionments.

Table No. 25

MILEAGES OF PRIMARY STATE HIGHWAYS

The mileages given in this table are inclusive of mileages within cities and towns.

Hwy. No.	Highway	Total Mileage of Highway	Miles of Different Types of Improvement						
			Concrete Pavement	Bituminous Pavement	Bituminous Macadam	Oiled Surfacing	Unoiled Surfacing	Graded	Unimproved
1	Pacific	229.83	73.71	141.83	14.29				
1E	Pacific, East	113.00	50.07	54.02	8.91				
1W	Pacific, West	116.10	63.92	33.89	18.29				
2	Columbia River	316.44	25.47	167.25	74.27	49.45			
3	Oswego	11.55	7.53	4.02					
4	The Dalles-California	300.09	2.42	5.74	44.61	247.32			
5	John Day	283.01			39.59	210.49	32.93		
6	Old Oregon Trail	238.81	2.74	6.95	169.00	60.12			
7	Central Oregon	258.59	0.04	0.27	58.94	199.34			
8	Oregon-Washington	35.85		8.07	27.78				
9	Oregon Coast	383.72	32.98	30.06	114.61	203.89			2.18
10	Wallowa Lake	71.92	0.24	2.95	13.44	55.29			
11	Enterprise-Lewiston	45.28					35.84	8.59	0.85
12	Baker-Homestead	81.06		0.33		46.52	3.90	2.47	27.84
13	Baker-Unity	46.41		0.42		9.04	15.92	21.03	
14	Crooked River	42.48				0.13		42.35	
15	McKenzie	111.55	0.25	0.46	33.25	77.59			
16	Santiam	100.76		8.19	36.91	40.08	7.72	7.86	
17	McKenzie-Bend	20.07				20.07			
18	Willamette	87.00				87.00			
19	Fremont	157.71			51.13	106.58			
20	Klamath Falls-Lakeview	95.84	3.82	1.26	42.37	42.35	6.04		
21	Green Springs	59.08		5.69	33.86	19.53			
22	Crater Lake	74.32	8.88	0.14	44.50	20.80			
23	Dairy-Bonanza	7.02				7.02			
24	Burns-Crane	28.89		0.04		0.35	28.50		
25	Redwood	42.51	0.11		10.83	31.57			
26	Mt. Hood	102.27	11.53	13.71	34.00	43.03			
27	Alsea	59.11			5.58	35.32	18.21		
28	Pendleton-John Day	122.03		1.61	30.10	80.26	3.28		6.78
29	Tualatin Valley	42.28	20.18	22.10					
30	Salem-Dallas	14.92	0.16	8.91	5.85				
31	Albany-Corvallis	11.12	10.26	0.86					
32	Three Rivers	24.74				24.74			
33	Corvallis-Newport	56.90	0.57		27.67	28.66			
34	Siuslaw	67.45			13.18	54.27			
35	Coos Bay-Roseburg	61.81	0.11	0.31	9.01	52.38			
36	Pendleton-Cold Springs	30.54			5.22	24.81	0.51		
37	Wilson River	54.32	1.70	0.48	10.60	28.72			12.82
38	Oregon Caves	19.70				19.70			
39	Salmon River	45.08	7.25	5.45	32.38				
40	Beaverton-Hillsdale	6.72	4.10	2.62					
41	Ochoco	104.08				66.87	37.21		
42	Sherman	68.85			15.86	52.99			
43	Monmouth-Independence	2.61		2.61					
44	Wapinitia	40.00		1.00	23.03	15.97			
45	Umpqua	50.13	0.59		33.52	16.02			
46	Necanicum	22.11			9.24	12.87			
47	Wolf Creek	74.83	3.61	0.73	28.39	20.14			21.96
48	John Day-Burns	67.05			18.63	18.02	30.40		
49	Lakeview-Burns	90.10				90.10			
50	Klamath Falls-Malin	27.14	0.10		18.14	8.90			
51	West Portland-Hubbard	17.16	4.07			0.04		0.31	12.74
52	Heppner	84.37				63.13	21.24		
53	Warm Springs	46.43				14.52		18.25	13.66
54	Boardman-Stanfield	25.52			25.52				
55	Halfway	11.15				11.15			
	Totals	4,809.41	336.41	531.97	1,182.50	2,317.14	241.70	100.86	98.83

Table No. 25

MILEAGES OF PRIMARY STATE HIGHWAYS

The mileages given in this table are inclusive of mileages within cities and towns.

Hwy. No.	Highway	Total Mileage of Highway	Miles of Different Types of Improvement						
			Concrete Pavement	Bituminous Pavement	Bituminous Macadam	Oiled Surfacing	Unoiled Surfacing	Graded	Unimproved
1	Pacific	229.83	73.71	141.83	14.29				
1E	Pacific, East	113.00	50.07	54.02	8.91				
1W	Pacific, West	116.10	63.92	33.89	18.29				
2	Columbia River	316.44	25.47	167.25	74.27	49.45			
3	Oswego	11.55	7.53	4.02					
4	The Dalles-California	300.09	2.42	5.74	44.61	247.32			
5	John Day	283.01			39.59	210.49	32.93		
6	Old Oregon Trail	238.81	2.74	6.95	169.00	60.12			
7	Central Oregon	258.59	0.04	0.27	58.94	199.34			
8	Oregon-Washington	35.85		8.07	27.78				
9	Oregon Coast	383.72	32.98	30.06	114.61	203.89			2.18
10	Wallowa Lake	71.92	0.24	2.95	13.44	55.29			
11	Enterprise-Lewiston	45.28					35.84	8.59	0.85
12	Baker-Homestead	81.06		0.33		46.52	3.90	2.47	27.84
13	Baker-Unity	46.41		0.42		9.04	15.92	21.03	
14	Crooked River	42.48				0.13		42.35	
15	McKenzie	111.55	0.25	0.46	33.25	77.59			
16	Santiam	100.76		8.19	36.91	40.08	7.72	7.86	
17	McKenzie-Bend	20.07				20.07			
18	Willamette	87.00				87.00			
19	Fremont	157.71			51.13	106.58			
20	Klamath Falls-Lakeview	95.84	3.82	1.26	42.37	42.35	6.04		
21	Green Springs	59.08		5.69	33.86	19.53			
22	Crater Lake	74.32	8.88	0.14	44.50	20.80			
23	Dairy-Bonanza	7.02				7.02			
24	Burns-Crane	28.89		0.04		0.35	28.50		
25	Redwood	42.51	0.11		10.83	31.57			
26	Mt. Hood	102.27	11.53	13.71	34.00	43.03			
27	Alsea	59.11			5.58	35.32	18.21		
28	Pendleton-John Day	122.03		1.61	30.10	80.26	3.28		6.78
29	Tualatin Valley	42.28	20.18	22.10					
30	Salem-Dallas	14.92	0.16	8.91	5.85				
31	Albany-Corvallis	11.12	10.26	0.86					
32	Three Rivers	24.74				24.74			
33	Corvallis-Newport	56.90	0.57		27.67	28.66			
34	Siuslaw	67.45			13.18	54.27			
35	Coos Bay-Roseburg	61.81	0.11	0.31	9.01	52.38			
36	Pendleton-Cold Springs	30.54			5.22	24.81	0.51		
37	Wilson River	54.32	1.70	0.48	10.60	28.72			12.32
38	Oregon Caves	19.70				19.70			
39	Salmon River	45.08	7.25	5.45	32.38				
40	Beaverton-Hillsdale	6.72	4.10	2.62					
41	Ochoco	104.08				66.87	37.21		
42	Sherman	68.85			15.86	52.99			
43	Monmouth-Independence	2.61		2.61					
44	Wapinitia	40.00		1.00	23.03	15.97			
45	Umpqua	50.13	0.59		33.52	16.02			
46	Necanicum	22.11			9.24	12.87			
47	Wolf Creek	74.83	3.61	0.73	28.39	20.14			21.96
48	John Day-Burns	67.05			18.63	18.02	30.40		
49	Lakeview-Burns	90.10				90.10			
50	Klamath Falls-Malin	27.14	0.10		18.14	8.90			
51	West Portland-Hubbard	17.16	4.07			0.04		0.31	12.74
52	Heppner	84.37				63.13	21.24		
53	Warm Springs	46.43				14.52		18.25	13.66
54	Boardman-Stanfield	25.52			25.52				
55	Halfway	11.15				11.15			
	Totals	4,809.41	336.41	531.97	1,182.50	2,317.14	241.70	100.86	98.83

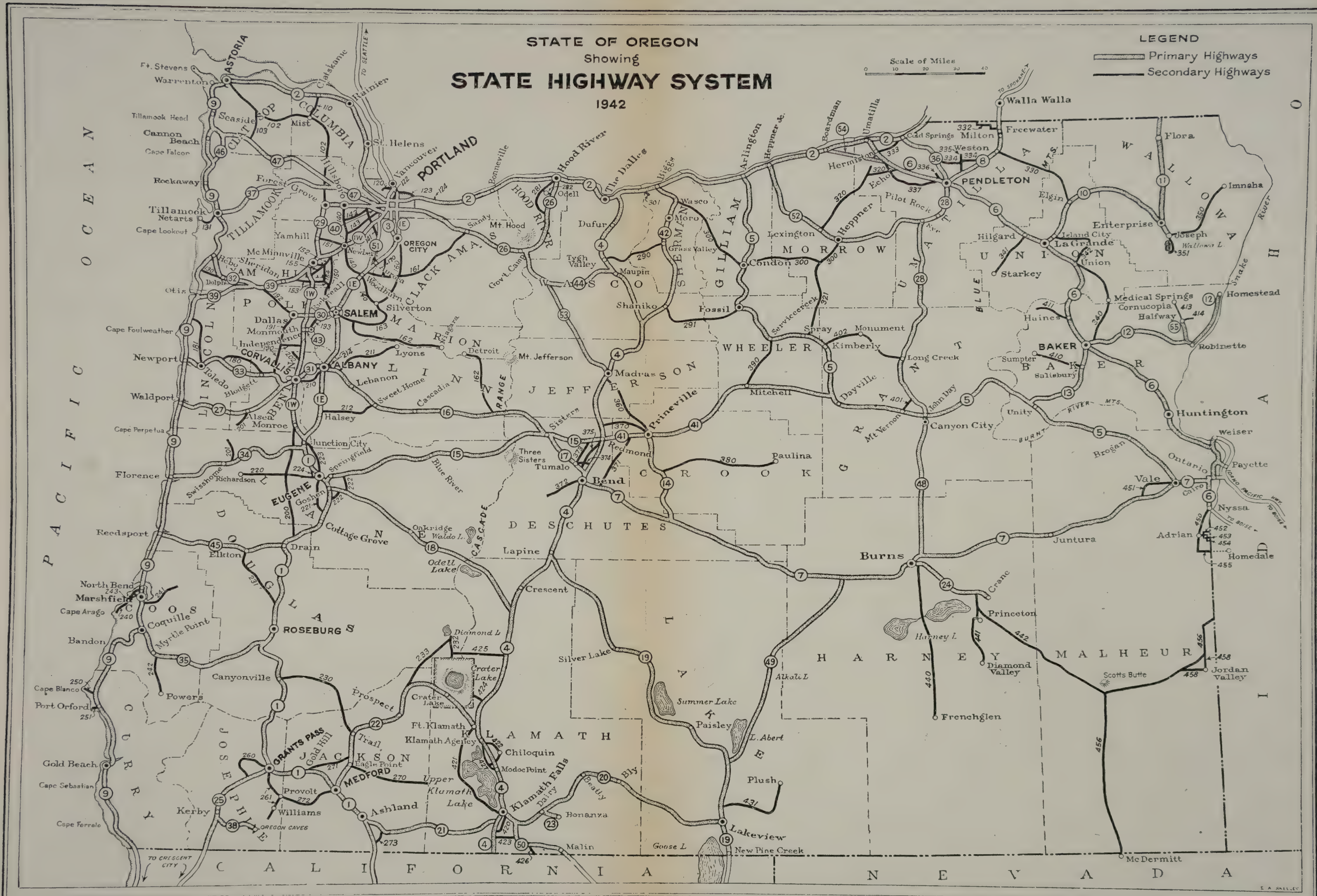

STATE OF OREGON
Showing
STATE HIGHWAY SYSTEM
1942
LEGEND
Primary Highways
Secondary Highways
Scale of Miles
PACIFIC OCEAN
CALIFORNIA
NEVADA
IDAHO
TO SEATTLE
TO SPOKANE
TO CRESCENT CITY
PORTLAND
SALEM
EUGENE
ALBANY
CORVALLIS
ROSEBURG
MEDFORD
GRANTS PASS
ASTORIA
PENDLETON
Astoria
Ft. Stevens
Warrenton
Seaside
Cannon Beach
Cape Falcon
Rockaway
Tillamook
Netarts
Cape Lookout
Otis
Newport
Waldport
Cape Perpetua
Florence
Reedsport
North Bend
Marshfield
Cape Arago
Bandon
Cape Blanco
Port Orford
Gold Beach
Cape Sebastian
Cape Ferrelo
Kerby
Williams
Provolt
Ashland
Klamath Falls
Malin
Bonanza
Lakeview
New Pine Creek
Goose L.
Plush
L. Abert
Paisley
Summer Lake
Silver Lake
Crescent
Lapine
Bend
Redmond
Prineville
Madras
Sisters
Tumalo
Three Sisters
Mt. Jefferson
Mt. Hood
Hood River
The Dalles
Dufur
Maupin
Shaniko
Moro
Wasco
Condon
Fossil
Heppner
Lexington
Arlington
Boardman
Umatilla
Hermiston
Echo
Pilot Rock
Milton
Freewater
Weston
Walla Walla
Elgin
La Grande
Union
Enterprise
Joseph
Wallowa L.
Imnaha
Flora
Homestead
Halfway
Cornucopia
Medical Springs
Baker
Haines
Sumpter
Robinette
Huntington
Weiser
Payette
Ontario
Vale
Nyssa
Adrian
Homedale
Jordan Valley
McDermitt
Burns
Juntura
Crane
Princeton
Diamond Valley
Frenchglen
Harney L.
Canyon City
John Day
Dayville
Mitchell
Paulina
Spray
Kimberly
Monument
Long Creek
Unity
Brogan
Dallas
Monmouth
Independence
Toledo
Lebanon
Sweet Home
Halsey
Junction City
Springfield
Cottage Grove
Drain
Elkton
Coquille
Myrtle Point
Powers
Canyonville
Prospect
Crater Lake
Diamond L.
Chiloquin
Klamath Agency
Ft. Klamath
Upper Klamath Lake
Oakridge
Odell Lake
Detroit
Lyons
Silverton
Oregon City
Woodburn
Newberg
McMinnville
Sheridan
Yamhill
Forest Grove
Hillsboro
St. Helens
Rainier
Clatskanie
Mist
Vancouver
Bonneville
Sandy
Odell
Tygh Valley
Grass Valley
CLATSOP
COLUMBIA
TILLAMOOK
WASHINGTON
YAMHILL
POLK
MARION
CLACKAMAS
LINCOLN
BENTON
LINN
LANE
DOUGLAS
COOS
CURRY
JOSEPHINE
JACKSON
KLAMATH
LAKE
DESCHUTES
CROOK
JEFFERSON
WASCO
HOOD RIVER
SHERMAN
GILLIAM
MORROW
UMATILLA
UNION
WALLOWA
BAKER
GRANT
WHEELER
HARNEY
MALHEUR
BLUE MTS.
CASCADE RANGE

Table No. 26

MILEAGES OF PRIMARY STATE HIGHWAYS BY COUNTIES

The mileages given in this table are inclusive of mileages within cities and towns.

County	Total Mileage in County	Miles of Different Types of Improvement						
		Concrete Pavement	Bitu-minous Pavement	Bitu-minous Macadam	Oiled Surfac-ing	Unoiled Surfac-ing	Graded Only	Unim-proved
Baker	230.84	0.98	1.66	57.51	87.33	32.02	23.50	27.84
Benton	93.41	18.17	10.53	23.73	40.98	.....	.....	.....
Clackamas	78.62	32.29	1.49	36.94	2.90	.....	.....	5.00
Clatsop	110.02	17.38	34.04	32.20	26.40	.....	.....	.....
Columbia	56.21	3.82	51.58	.....	0.81	.....	.....	.....
Coos	102.46	21.75	2.07	24.96	53.68	.....	.....	.....
Crook	82.86	.....	.....	.....	31.36	13.22	38.28	.....
Curry	90.12	0.37	.....	12.15	77.60	.....	.....	.....
Deschutes	204.28	0.52	3.45	47.35	148.89	.....	4.07	.....
Douglas	199.98	30.78	69.08	35.10	65.02	.....	.....	.....
Gilliam	97.21	0.05	.....	14.91	82.25	.....	.....	.....
Grant	199.43	.....	.....	21.40	147.30	23.95	.....	6.78
Harney	185.55	.....	0.04	49.49	88.57	47.45	.....	.....
Hood River	69.44	0.53	25.41	3.37	40.13	.....	.....	.....
Jackson	148.03	18.93	36.27	68.71	24.12	.....	.....	.....
Jefferson	71.33	.....	.....	4.74	59.95	.....	3.83	2.81
Josephine	96.77	6.34	28.33	10.83	51.27	.....	.....	.....
Klamath	303.21	5.86	3.82	105.14	188.39	.....	.....	.....
Lake	244.39	.....	.....	51.13	187.22	6.04	.....	.....
Lane	286.62	33.20	17.57	48.76	187.09	.....	.....	.....
Lincoln	137.90	1.23	.....	72.26	46.20	18.21	.....	.....
Linn	117.10	13.68	21.56	31.93	34.35	7.72	7.86	.....
Malheur	182.47	1.60	1.39	60.53	107.44	11.51	.....	.....
Marion	47.05	15.58	31.43	.....	0.04	.....	.....	.....
Morrow	107.44	.....	.....	17.02	79.63	10.79	.....	.....
Multnomah	119.07	31.51	86.29	0.74	.....	.....	.....	0.53
Polk	58.17	14.81	18.42	23.83	1.11	.....	.....	.....
Sherman	63.92	0.04	.....	30.69	33.19	.....	.....	.....
Tillamook	132.45	6.98	11.27	47.99	64.03	.....	.....	2.18
Umatilla	246.87	0.16	11.62	143.59	80.54	10.96	.....	.....
Union	84.46	0.24	4.70	38.87	40.65	.....	.....	.....
Wallowa	83.71	.....	0.96	7.72	29.75	35.84	8.59	0.85
Wasco	190.17	.....	20.00	37.82	107.08	.....	14.42	10.85
Washington	107.23	15.68	26.59	16.79	5.87	.....	0.31	41.99
Wheeler	107.26	.....	.....	.....	83.27	23.99	.....	.....
Yamhill	73.36	43.93	12.40	4.30	12.73	.....	.....	.....
Totals	4,809.41	336.41	531.97	1,182.50	2,317.14	241.70	100.86	98.83

Table No. 27

MILEAGES OF SECONDARY STATE HIGHWAYS BY COUNTIES

The mileages given in this table are inclusive of mileages within cities and towns.

County	Total Mileage in County	Miles of Different Types of Improvement						
		Concrete Pavement	Bituminous Pavement	Bituminous Macadam	Oiled Surfacing	Unoiled Surfacing	Graded Only	Unimproved
Baker	70.29	.....	.....	.....	20.20	46.16	.....	3.93
Benton	31.85	.....	0.13	.....	11.84	19.88	.....	.....
Clackamas	89.71	19.58	17.50	4.85	41.05	6.58	.....	0.15
Clatsop	43.58	10.41	3.85	0.98	22.48	.....	.....	5.86
Columbia	42.04	.....	0.78	5.22	32.71	3.33	.....	.....
Coos	55.28	1.08	0.94	0.35	36.85	10.86	.....	5.20
Crook	81.45	.....	.....	.....	0.40	59.43	21.62	.....
Curry	6.33	.....	.....	.....	.....	5.29	.....	1.04
Deschutes	53.41	.....	0.56	.....	24.76	3.84	24.25	.....
Douglas	97.72	.....	0.10	.....	35.99	61.63	.....	.....
Gilliam	42.34	.....	0.14	.....	15.36	9.95	5.78	11.11
Grant	41.20	.....	.....	.....	5.35	26.24	2.56	7.05
Harney	122.48	.....	.....	.....	8.54	14.71	49.33	49.90
Hood River	21.65	3.78	0.31	0.86	11.97	4.73	.....	.....
Jackson	97.63	.....	17.15	.....	64.28	.....	0.23	15.97
Jefferson	19.37	.....	.....	.....	.....	8.16	6.50	4.71
Josephine	46.13	.....	1.05	.....	30.43	14.65	.....	.....
Klamath	106.78	.....	0.61	2.14	50.02	16.61	7.00	30.40
Lake	46.21	.....	.....	.....	.....	21.42	13.72	11.07
Lane	141.68	1.83	13.85	8.42	13.40	93.97	.....	10.21
Lincoln	44.31	.....	.....	5.55	7.78	30.98	.....	.....
Linn	77.93	.....	0.15	.....	63.78	14.00	.....	.....
Malheur	209.58	.....	.....	.....	87.89	40.65	32.73	48.31
Marion	126.47	0.25	65.61	.....	49.04	.....	0.43	11.14
Morrow	74.44	.....	.....	.....	37.78	24.90	6.92	4.84
Multnomah	16.78	12.54	3.53	.....	0.71	.....	.....	.....
Polk	57.59	0.06	3.75	.....	42.33	11.45	.....	.....
Sherman	40.57	.....	.....	.....	.....	26.48	4.23	9.86
Tillamook	18.55	1.56	0.10	.....	7.49	3.94	3.02	2.44
Umatilla	117.65	0.05	0.29	1.98	101.64	13.28	.....	0.41
Union	81.79	.....	.....	.....	56.79	19.48	1.70	3.82
Wallowa	36.88	.....	.....	.....	6.16	8.08	22.64	.....
Wasco	31.98	.....	.....	.....	.....	22.70	5.48	3.80
Washington	67.94	0.35	1.54	7.17	49.22	9.66	.....	.....
Wheeler	61.28	.....	.....	.....	0.60	35.12	3.06	22.50
Yamhill	66.73	9.71	3.13	0.57	45.67	7.65	.....	.....
Totals, 1941	2,387.60	61.20	135.07	38.09	982.51	695.81	211.20	263.72

Table No. 28

MILEAGES OF SECONDARY STATE HIGHWAYS

The mileages given in this table are inclusive of mileages within cities and towns.

Hwy. No.	Highway	Total Mileage of Highway	Miles of Different Types of Improvement						
			Concrete Pavement	Bituminous Pavement	Bituminous Macadam	Oiled Surfacing	Unoiled Surfacing	Graded	Unimproved
102	Nehalem	85.39	10.41	5.39	13.37	52.89	3.33		
103	Fishhawk Falls	5.86							5.86
110	Mist-Clatskanie	11.90				11.90			
120	Swift	2.94	2.09	0.85					
122	Vancouver Avenue	0.50	0.50						
123	Northeast Portland	5.10	4.17	0.93					
124	Sun Dial	1.25		1.25					
130	Little Nestucca	9.40					3.94	3.02	2.44
131	Netarts	9.15	1.56	0.10		7.49			
140	Hillsboro-Silverton	52.19	0.35	32.22		11.73	7.89		
141	Beaverton-Aurora	20.81	0.39	5.42		14.85			0.15
142	Farmington	9.89				5.14	4.75		
143	Scholls	12.40				12.40			
150	Salem-Dayton	20.10	0.03			20.07			
151	Yamhill-Newberg	11.65	0.80	0.58		5.60	4.67		
152	Three Mile Lane	8.46	7.83	0.63					
153	Bellevue-Hopewell	14.89				14.89			
154	Lafayette	5.75				5.75			
155	Amity-Dayton	7.03				7.03			
156	McMinnville	1.80	1.05	0.18	0.57				
160	Cascade	44.61	16.84	13.12		14.65			
161	Woodburn-Sandy	46.67	0.62	7.42	4.85	27.20	6.58		
162	North Santiam	65.43		15.46		38.40		0.43	11.14
163	Silver Creek Falls	40.82		12.49		28.33			
170	Canby-Marquam	8.02	7.76			0.26			
180	Eddyville-Blodgett	18.92					18.92		
181	Siletz	31.86			5.55	7.78	18.53		
190	Kings Valley	25.43				19.18	6.25		
191	Dallas-Kings Valley	10.81		0.43		5.18	5.20		
192	Dallas-Coast	15.19				15.19			
193	Independence	6.38	0.06	3.32		3.00			
200	Territorial	45.99			3.33	2.02	40.64		
201	Alsea-Deadwood	27.40					27.40		
202	Tampico-Lewisville	5.46					5.46		
210	Corvallis-East Side	10.19		0.28		9.91			
211	Albany-Lyons	24.68				10.68	14.00		
212	Halsey-Sweet Home	21.51				21.51			
214	Albany Airport	1.07				1.07			
220	Richardson-Eugene	38.29		1.03	5.09	6.98	23.86		1.33
221	Fox Hollow	15.50	1.13				5.87		8.50
222	Springfield-Creswell	15.52				6.42	9.10		
223	Junction City-Eugene	13.52	0.70	12.82					
224	W. 7th St.-W. 11th St.	0.38							0.38
230	Tiller-Trail	50.03				22.51	27.52		
231	Elkton-Sutherlin	29.26		0.10			29.16		
232	Crater Lake-North	5.29				5.29			
233	West Diamond Lake	23.89				23.89			
240	Cape Arago	14.25	0.34	0.22		10.57	3.12		
241	Coos River	18.86	0.59		0.35	4.98	7.74		5.20
242	Powers	18.62	0.15			18.47			
243	Empire-Marshfield	3.55		0.72		2.83			
250	Cape Blanco	5.54					4.50		1.04
251	Port Orford	0.79					0.79		
260	Rogue River Loop	23.00		1.05		7.30	14.65		
261	Williams	23.13				23.13			
270	Little Butte	30.33				14.13		0.23	15.97
271	Sams Valley	17.25				17.25			
272	Medford-Provolt	25.42		9.54		15.88			
273	Siskiyou	7.61		7.61					
281	Hood River	18.14	2.96	0.31	0.86	11.21	2.80		

Table No. 28—Continued

MILEAGES OF SECONDARY STATE HIGHWAYS

Hwy. No.	Highway	Total Mileage of Highway	Miles of Different Types of Improvement						
			Concrete Pavement	Bituminous Pavement	Bituminous Macadam	Oiled Surfacing	Unoiled Surfacing	Graded	Unimproved
282	Odell	3.51	0.82			0.76	1.93		
290	Shearars Bridge	28.97					20.94	4.23	3.80
291	Shaniko-Fossil	43.65				0.60	22.99	7.78	12.28
300	Wasco-Heppner	90.58		0.14		33.08	18.85	12.70	25.81
301	Fulton Canyon-Wasco	1.50					1.50		
320	Lexington-Echo	39.56				39.56			
321	Heppner-Spray	41.00					41.00		
330	Weston-Elgin	41.39		0.10		41.29			
332	Sunnyside-Umapine	7.25				7.25			
333	Hermiston	17.54			0.62	16.92			
334	Athena-Holdman	16.44		0.19		2.97	13.28		
335	Havana-Helix	8.90	0.05			8.85			
336	Airport	1.36			1.36				
337	Stanfield-Pendleton	24.65				24.65			
338	Ordnance Depot	0.41							0.41
340	Medical Springs	42.67				42.34	0.33		
341	Starkey	17.00					11.48	1.70	3.82
342	Cove	22.16				14.49	7.67		
350	Little Sheep Creek	30.42					7.78	22.64	
351	Joseph-Wallowa Lake	6.46				6.16	0.30		
360	Madras-Prineville	30.07				0.40	14.94	10.02	4.71
370	O'Neil	17.81					17.81		
371	Powell Butte	17.92					7.70	10.22	
372	Century Drive	11.79		0.56		11.23			
373	Cline Falls	10.13						10.13	
374	Tumalo-Deschutes	3.90						3.90	
375	Redmond-Bend	13.53				13.53			
380	Crooked River-Paulina	49.08					30.98	18.10	
390	Service Creek-Mitchell	24.85					13.87	0.76	10.22
401	Beach Creek	5.35				5.35			
402	Kimberly-Long Creek	35.85					26.24	2.56	7.05
410	Sumpter Valley	22.62					19.59		3.03
411	Haines-Anthony	12.60					11.70		0.90
413	Halfway-Cornucopia	11.52				0.37	11.15		
414	Pine Creek	3.72					3.72		
420	Midland	5.61			2.14		3.47		
421	Klamath Lake	49.70		0.61		6.10	8.59	7.00	27.40
422	Chiloquin	10.88				10.88			
423	Lower Klamath	7.55					4.55		3.00
424	Sand Creek	4.23				4.23			
425	E. Diamond Lake	14.72				14.72			
426	Hatfield	2.51				2.51			
427	Klamath Agency-Modoc Point	12.90				12.90			
431	Warner	46.21					21.42	13.72	11.07
440	Frenchglen	62.00				8.54	3.56		49.90
441	Diamond Valley	36.18					11.15	25.03	
442	Rome-Princeton	61.71						24.30	37.41
450	Nyssa-Adrian	20.95				13.00	7.95		
451	Vale-West	10.72				3.76	6.96		
452	Adrian-Parma	2.77				2.77			
453	Adrian-Arena	3.19					3.19		
454	Adrian-Caldwell	4.40					4.40		
455	Homedale Spur	1.95					1.95		
456	I. O. N.	117.87				68.36	16.20	27.49	5.82
458	Jordan Valley	10.32						5.24	5.08
	Totals	2,387.60	61.20	135.07	38.09	982.51	695.81	211.20	263.72

Table No. 29

MILEAGES OF ROADS OTHER THAN STATE HIGHWAYS

The mileages given here include all local and county roads, Indian service roads, National Park roads and forest development roads. They include both rural and city mileages. They do not include mileages of any primary or secondary state highways. The data have been compiled from mileages reported by the Statewide Highway Planning Survey.

County	Total Mileage in County	Miles of Different Types of Improvement					
		Concrete Pavement	Bituminous Pavement	Oiled Surfacing	Unoiled Surfacing	Graded Only	Unimproved
Baker	1,835	.....	5	19	373	1,062	376
Benton	442	8	10	5	357	52	10
Clackamas	1,690	79	168	143	1,039	200	61
Clatsop	374	29	34	74	113	111	13
Columbia	525	1	17	13	429	44	21
Coos	642	22	10	9	415	66	120
Crook	1,261	.....	.....	.....	60	754	447
Curry	265	.....	.....	.....	101	134	30
Deschutes	2,220	1	5	2	127	1,107	978
Douglas	1,528	15	11	24	884	522	72
Gilliam	567	.....	.....	.....	98	344	125
Grant	1,612	.....	1	.....	135	1,041	435
Harney	2,472	.....	1	.....	62	1,667	742
Hood River	362	2	10	3	153	80	114
Jackson	1,621	6	67	24	512	783	229
Jefferson	949	.....	2	1	117	501	328
Josephine	781	2	10	1	255	368	145
Klamath	2,944	7	55	27	277	1,086	1,492
Lake	2,916	.....	1	.....	139	1,112	1,664
Lane	1,607	32	33	175	873	392	102
Lincoln	391	.....	2	4	185	104	96
Linn	1,286	1	34	55	1,006	161	29
Malheur	2,621	.....	1	1	253	359	2,007
Marion	1,380	65	230	53	893	105	34
Morrow	1,413	.....	.....	4	298	643	468
Multnomah	1,672	177	654	286	408	43	104
Polk	538	2	21	22	427	27	39
Sherman	502	.....	1	.....	98	327	76
Tillamook	345	7	14	4	214	89	17
Umatilla	2,338	.....	19	5	695	1,039	580
Union	1,235	1	10	4	246	708	266
Wallowa	1,304	.....	8	.....	131	825	340
Wasco	1,415	1	12	26	324	864	188
Washington	1,119	5	28	120	774	86	106
Wheeler	537	.....	.....	.....	57	306	174
Yamhill	905	5	43	2	677	110	68
Totals	45,614	468	1,517	1,106	13,205	17,222	12,096

LIST OF PERSONS RENDERING PROFESSIONAL OR SPECIAL SERVICES

July 1, 1940, to June 30, 1942

Name and Address	Nature of Service	Compensation
Ahlstrom, N., Portland	Land appraisals	$ 37.50
Allen, W. C., Grants Pass	Land appraisals	25.00
Barton, J. S., Coquille	Land appraisals	15.00
Brogoitte, E. E., Pendleton	Land appraisals	15.00
Brown & Brown, Portland	Timber cruising	917.88
Chambers, F. L., Eugene	Land appraisals	38.00
Coburn, Geo. L., Bandon	Land appraisals	15.00
Coos County Realty Board, North Bend	Land appraisals	45.00
Curl, C. C., Pendleton	Land appraisals	15.00
Devine & Zimmerman, Portland	Diving service	58.50
Dryer, H. A., Portland	Land appraisals	200.00
Earle, Hugh, Salem	Land appraisals	40.90
Galey, H. C., Ashland	Land appraisals	36.00
Gordon, H., Portland	Land appraisals	134.00
Gray, E., Klamath Falls	Land appraisals	70.00
Griffith, E. A., Hillsboro	Land appraisals	175.00
Hadley, H. B., Klamath Falls	Land appraisals	40.00
Hillstrom, Jake, Marshfield	Land appraisals	17.40
Howland, A. C., Oregon City	Land appraisals	22.50
Hyde, C., Eugene	Land appraisals	40.00
Ide, W. G., Hillsboro	Land appraisals	62.50
Jensen, A., Salem	Land appraisals	25.00
Johnson, C. V., Salem	Land appraisals	25.00

Kuratli, H. A., Hillsboro	Land appraisals	125.00
Laber, J. B., Portland	Land appraisals	150.00
Lieuallen, L. L., Pendleton	Land appraisals	15.00
McCaffery, J. S., Redmond	Land appraisals	25.00
McKenna, Chas., Portland	Land appraisals	150.00
Meverden, Frank, Portland	Land appraisals	25.00
Miles, Mary, Eugene	Witness fees	53.00
Paine, Chas., Eugene	Witness fees	73.00
Pankey, T. E., Gold Hill	Cement inspection	727.93
Portland City of (J. B. Needham)	Engineering inspection	627.00
Pound, Grover, Pendleton	Land appraisals	10.00
Price, D. W., Scappoose	Land apparisals	20.00
Rodman, James A., Eugene	Land appraisals	40.00
Rutherford, L. R., St. Helens	Land appraisals	15.00
Salem Realty Board, Salem	Land appraisals	50.00
Smith, I. S., Marshfield	Land appraisals	10.00
Troll, Frank, Grants Pass	Land appraisals	25.00
Ulrich Co., J. H., Salem	Land appraisals	25.00
Vaught, J. T., Lime	Cement inspection	252.65
Wakefield-Fries & Woodward, Portland	Land appraisals	30.00
Walker, F. H., Ashland	Land appraisals	50.00
Woodworth, W. H., Portland	Land appraisals	75.00

LIST OF EMPLOYES OF STATE HIGHWAY COMMISSION

The following is a list of the employes of the State Highway Commission as of June 30, 1942, together with the amounts of compensation and expense allowance paid to each during the two-year period from July 1, 1940, to June 30, 1942.

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Adams, Bert F., stockman	$2,845.00	$	$
Adams, Clair E., laborer	837.01		
Adams, Frank P., state police guard	480.00		
Adams, James Glenn, section foreman	2,775.88		
Adams, John D., pull grader operator	2,583.98		
Adams, Paul, head chainman	2,380.50	47.45	
Addison, Kenneth O., pilot car driver	132.56		
Addison, Nile, laborer	158.76		
Addy, Oral T., stenographer	1,746.13		
Adkins, Herman P., laborer	598.95		
Adlard, John R., laboratory assistant	3,587.33		
Adrion, Clarence F., laborer	119.12		
Aerondon, Milton D., laborer	335.16		
Agee, James O., laborer	94.92		
Ala, Raymond E., head chairman	1,201.67		
Alexander, Clyde M., checker	513.87		
Alexander, Glenn E., laborer	1,099.79		
Allen, Benjamin F., section foreman helper	2,868.98		
Allen, Guy Mayhew, assistant carpenter	3,062.55		
Allen, M. W., draftsman	4,002.00	2.20	
Alley, Wm. J., laborer	70.30		
Alling, George W., office assistant	3,620.00		
Allstott, Clifford M., mechanic	3,483.60	33.00	
Altenburg, Peter H., truck driver	1,535.68	2.65	
Alvick, Roy, engineer assistant	4,410.00	25.75	
Ames, Virgil V., head chainman	2,694.82	65.15	
Anderson, Clifford F., assistant carpenter	2,540.02		
Anderson, Conrod E., truck driver	263.57		
Anderson, Frank K., laborer	508.86		
Anderson, Geo. G., office assistant	3,488.67		
Anderson, Gilbert D., foreman	3,377.20		
Anderson, Leonard, truck driver	100.64		
Anderson, Myron H., street foreman	3,612.90	10.15	
Anderson, Norman Vic., laborer	410.00		
Anderson, Orin J., weighmaster	2,100.75		
Anderson, Rufus H., truck driver	2,372.20		
Andrews, Lynn C., section foreman	3,165.31		
Ansell, Clayton K., truck driver	513.75	21.05	
Ansell, Leonard J., surface foreman	3,181.07		
Ansell, Lewis J., load spotter	1,093.02		
Antles, Archer A., trk. driver-tamperman	412.46		
Antrim, Vern, laborer	261.36		
Applegate, Clarence L., bridgeman	1,918.59		
Apperson, James L., chainman	130.00		
Appleton, Roswell O., laborer	186.48		
Archibald, Alfred E., engineer assistant	4,240.00	504.80	
Armstrong, Chester H., dist. maint. supt.	6,010.00	232.00	
Armstrong, Clarence B., boilerman	2,665.74		
Arnold, Allen D., laborer	36.20		
Arnold, Joseph, shovel operator	3,851.46	5.30	
Arnold, Leonard C., laborer	100.70		
Arnoldus, Theo. C., chainman	425.82		
Aronson, Edward N., mechanic	3,630.78		
Aronson, Walter J., rollerman	2,589.43		
Asburry, Raymon D., draftsman	3,532.58	43.70	
Ashbaugh, Terry A., truck driver	509.53		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Asher, Clarence S., drawbridge supt.	$3,052.91	$	$
Ashworth, Earl C., truck driver	73.44		
Austin, Jacob L., kettleman	354.50		
Avery, Earl R., laborer-truck driver	1,328.51		
Axling, Carl R., motor grader operator	377.23		
Axtell, Clare R., laborer	1,448.91		
Ayres, Chester L., laborer	198.38		
Babb, Burrell S., laborer-truck driver	1,557.29		
Bacon, Jesse L., paintman	322.68		
Bacot, Dan A. N., chainman	34.67		
Badley, Robert H., section foreman helper	2,899.76		
Bagwell, George A., sign crew helper	2,222.40	301.75	
Bagwell, John H., bridgeman	899.80		
Bailey, Arthur L., truck driver	1,943.65	1.10	
Bailey, Floyd D., laborer	282.24		
Bainter, Emmett O., section foreman	3,315.00		
Bairey, Pearl, clerk	2,670.00		
Baker, Eugene E., laborer	228.30		
Baker, George C., transitman	4,110.00	51.85	
Baker, James Lee, truck driver	1,726.45		
Baldock, R. H., state highway engineer	14,400.00	633.65	
Baley, Thomas J., checker	1,970.65		
Ball, Fred A., state police guard	822.58		
Ballard, Kenneth M., laborer	2,056.19		
Bambrick, Geo., state police guard	531.25		
Bandy, John C., draftsman	3,560.21	7.35	
Baney, James W., laborer	687.62		
Bangert, J. Brownie, ass't. bridge foreman	3,146.51		
Banick, August A., laborer	2,140.27		
Bany, Paul J., bridge foreman	4,020.00		
Barbee, Daniel Jay, engineer specialist	4,355.00		
Barhyte, Max R., head chainman	2,448.13	96.80	
Barker, Milo H., street foreman	2,805.01	1.60	
Barkwell, Bryant Lee, mechanic	3,613.04	3.65	
Barlow, James E., truck driver	2,498.95		
Barnes, Arthur M., laborer-truck driver	1,316.97		
Barnes, Elmer L., apprentice raker	1,624.96		
Barnes, Fred E., truck driver	502.96		
Barnes, Lloyd E., trimmer	2,442.32		
Barnes, Robert G., laborer	138.29		
Barnett, John R., flushcoater	109.46		
Barnhart, George A., transitman	3,650.00		
Barnum, Robert P., mechanic	2,999.18		
Barsness, George A., head chainman	2,716.13	25.55	
Bartel, Herbert, truck driver	1,326.71		
Bartel, Kenneth E., inspector	3,630.00		
Bartell, Ben J., electrician	3,424.48		
Bartlett, James P., office assistant	2,673.71	3.25	
Bashaw, Elmer R., chainman	110.00		
Bassett, Paul N., assistant rigger	2,197.98		
Bates, Alfred W., chainman	2,337.25		
Bates, Bruce A., chainman	260.00		
Batteen, Vernon H., section foreman helper	2,874.92		
Batzner, Leonard B., surface foreman	3,137.16		
Bauer, Anton, state police guard	830.64		
Baumgartner, Nick, laborer	1,900.94		
Baxter, Clarence H., weighmaster	1,724.78		
Baxter, Herman M., plant foreman	2,004.35		
Baylie, James E., shoveler	248.76		
Beachy, Eli, street foreman	2,811.71		
Beachy, Lewis E., raker	1,999.43		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Beaird, David M., painter	$ 44.40	$	$
Beakey, John, traffic engineer	8,640.00	610.15	
Beam, Guy, section foreman helper	2,874.00		
Beardsley, Eldidge W., state police guard	90.00		
Beck, Oscar J., caretaker	2,060.00		
Bedingfield, James A., bridge foreman	3,950.00		
Bedortha, Wm. B., truck driver	2,569.29		
Bedwell, Emery C., caretaker	1,400.58		
Beecroft, Donald E., driver	131.29		
Beamer, J. A., state police guard	435.48		
Beeson, James I., truck driver	2,668.97		
Belgard, Chas. Rex, truck driver	761.96		
Bell, Barbara J., key punch operator	48.00		
Bell, Charles, flagman	1,358.05		
Bell, James R., laborer-truck driver	2,390.25		
Bellamy, John W., section foreman	3,315.00		
Bellinger, Richard G., power mower operator	616.24		
Bellus, Leslie V., mechanic	3,557.90		
Benedict, Albert V., resident engineer	5,830.00	5.00	
Benefiel, Geo. E., truck driver	44.72		
Benefiel, John W., truck driver	134.88		
Benner, Esthel, asst. real property officeman	1,010.00		
Bennett, Edgar L., laborer-truck driver	835.46		
Bennett, Jack E., checker	345.48	9.50	
Bennett, Ernest B., truck driver	442.93		
Bennett, Ianthis F., laborer	1,328.04		
Bennett, Paul I., kettleman	65.10		
Bennett, Stanley M., truck driver	118.48		
Benson, Harry G., right of way agent	6,225.00	897.45	
Bergen, Bernhard, laborer	222.80		
Berger, Fredrick W., checker	299.00		
Bergmann, Wm. T., truck driver	195.77		
Berks, George J., truck driver	1,911.88		
Berry, Frank J., foreman	2,222.98		
Berry, H. Newton, laborer	65.52		
Best, Clyde W., grader operator	111.28		
Best, Warren K., truck driver	99.00		
Bestul, Knute, flagman	142.56		
Bettencourt, Manuel S., truck driver	997.65		
Betz, Alex A., laborer	173.88		
Betzer, Ray, head price clerk	3,630.00		
Betzer, Reynold P., electrical foreman	3,900.00	751.36	
Bewley, Carl O., mechanic	3,111.82		
Beyer, Herbert J., laborer	333.40		
Bice, Clarence G., laborer	553.49	3.30	
Bickmore, Earl G., resident engineer	6,030.00	112.10	
Bieckel, Harold L., laborer-shoveler	70.90		
Biehler, Bert F., plant foreman	2,583.21		
Bilow, Charles F., truck driver	264.41		
Binder, Irl R., laborer	2,283.35		
Birch, Earl G., laborer	262.08		
Bishop, Edwin B., checker	4.33		
Bissett, Ralph R., section foreman helper	2,840.51		
Biwer, Darwin Albert, timekeeper	430.00		
Bixby, Vere H., trav. pull grader operator	2,476.07		
Bizon, Pauline, typist	1,760.00		
Black, Chas. I., kettleman	2,005.50		
Blanchard, Robt. M., laborer	30.20		
Blaser, Ernest S., truck driver	89.60		
Bleakman, Kenneth P., chainman	1,863.55	28.60	
Blensly, Robert, shoveler	108.48		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Bliven, Earl L., truck driver-tend. dr.	$1,391.63	$	$
Bliven, Howard, watchman and janitor	1,867.03		
Blomberg, Alfred R., mechanic	3,751.18	11.65	
Blomberg, Willard H., truck driver	372.51	7.55	
Bloom, Ira S., laborer	159.36		
Bloom, Venard, laborer	45.76		
Bloomberg, Carl W., motor grader operator	2,726.75	32.95	
Boardman, Kenneth Y., computer	3,518.39	39.55	
Boardman, S. H., parks superintendent	7,850.00	769.35	
Bodewig, Jake C., truck driver	2,384.20	18.40	
Boldt, Leroy, oiling foreman	4,121.43		
Bones, Walter J., section foreman helper	2,839.21		
Boock, Earnest E., truck driver	370.91		
Booth, Eugene M., assistant staff engineer	6,488.33	403.95	
Booth, Fred L., lineman	152.24		
Borah, Melvin E., section foreman helper	2,900.31	2.60	
Boring, Melvin Lee, truck driver	235.04		
Bork, Roy V., office assistant	2,371.02		
Bostrack, Russell M., trk dr-pow. mow. oper.	2,673.88		
Bostwick, John W., laborer	5.04		
Boswell, A. C., laborer	2,311.68		
Bowman, Roger, assistant carpenter	2,506.30		
Bowne, William E., head chainman	3,105.00		
Boyce, Charles A., laborer-truck driver	705.52		
Boyce, Charles E., lineman	542.32		
Boyer, J. Vernon, bridge carpenter	1,937.47	7.30	
Bradford, Darrel T., carpenter	3,246.77		
Bragg, Ralph H., raker	2,880.92		
Bramlette, Clyde J., section foreman helper	2,768.71		
Bramlette, Jeptha C., laborer	2,207.27		
Bramlette, Richard, truck driver	2,474.56		
Branson, Averill P., engineer designer	4,665.00		
Branson, Eldon F., laborer	186.80		
Brantner, Homer L., laborer-truck driver	833.04		
Brazil, Dick J., raker	16.00		
Brecke, Norman F., laborer	35.64		
Brehm, Richard F., laborer-truck driver	1,640.46		
Brendle, Russell, state police guard	164.52		
Breneman, Archie D., laborer	795.46		
Bressler, George A., mechanic	3,635.84		
Breuser, Otto W., laborer	2,342.14		
Brewer, Berry, section foreman helper	2,830.76		
Bridges, Anson O., accountant	2,404.84	9.60	
Broadwell, Harry C., resident engineer	6,030.00		
Brock, Walter E., section foreman helper	2,881.76		
Bromley, James G., dist. maint. supt.	6,030.00	266.05	
Brooks, Ballard A., laborer	62.20		
Brooks, Carl O., truck driver	413.80		
Brooks, Paul E., truck driver	2,545.31		
Broussard, Harold L., rollerman	3,035.36		
Brown, Ben G., shoveler	148.68		
Brown, Charles H., laborer	1,327.41		
Brown, Charles W., street foreman	2,758.49		
Brown, Chris C., head chainman	2,885.00	.45	
Brown, Daryl M., laborer-truck driver	2,476.47	13.20	
Brown, Frank R., inspector	879.00	8.55	
Brown, James M., truck driver	2,699.82		
Brown, Joseph H., laborer	40.80		
Brown, Keith, laborer	95.20		
Brown, Kenneth D., laborer	63.56		
Brown, Percy M., watchman	1,319.51		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Brown, Ralph J., grader operator	$ 241.80	$	$
Brown, Ray E., section foreman helper	2,889.28		
Brown, Robert J., truck driver	2,396.81		
Brown, Thomas W., state police guard	439.52		
Brown, Virgil J., truck driver	1,296.32		
Brown, Willis E., grader operator	112.48		
Browning, Robert C., section foreman	3,315.00	6.15	
Browning, Russel M., laborer-truck driver	1,638.74		
Bruce, David E., laborer	85.68		
Bruijn, John, laborer	1,971.65		
Brummel, John W., laborer	120.96		
Brunell, Leo W., mechanic	2,932.84	481.40	
Bryan, Clarence J., laborer	244.62		
Bryon, Robert L., laborer	251.68		
Buchheit, Donald W., assistant timekeeper	209.27		
Buchholz, Martin, mechanic	1,370.68		
Buck, George L., bridgeman	1,630.10		
Bucknum, Wm. H., section foreman	3,970.00		
Buell, Otis H., laborer-truck driver	2,316.47		
Buhler, Frank, laborer	333.10		
Buker, Clifford, state police guard	822.58		
Bull, Barney L., section foreman	3,315.00		
Bunch Sam S., section foreman	3,315.00		
Buoy, Clarence G., laborer	1,875.02		
Burch, John T., resident engineer	6,030.00	3.65	
Burch, Lyle V., truck driver	2,611.42		
Burch, Roy R., traffic line foreman	3,740.00		
Burdett, Willard H., draftsman	4,110.00	56.10	
Buren, Linford, shoveler	189.84		
Burg, Martin F., truck driver	32.64		
Burgey, Arland B., painter	156.88		
Burkholder, Edward W., assistant carpenter	2,648.40	18.50	
Burmeister, August, laborer	352.86		
Burnett, Preston F., stakeman-chainman	1,039.98	8.00	
Burtis, Henry W., watchman and janitor	2,605.00		
Burt, Arthur M., section foreman	3,499.41		
Burton, C. Ray, laborer	2,812.79	9.95	
Burton, Wm. T., leverman	1,020.66		
Busch, Herman C., laborer	1,394.22		
Busch, Wm. R., laborer	37.80		
Buswell, Edwin P., trk. dr.-motor grader oper.	2,577.60		
Butler, Gene D., pitman	245.80		
Button, Douglas A., computer	2,906.47		
Butts, Chester C., section foreman helper	2,713.18	1.80	
Byars, Walter L., laborer	27.20		
Byers, Alva J., section foreman helper	2,305.54		
Bynon, Geo. E., Jr., property manager	4,230.00	84.18	
Byrd, William Alton, weighmaster	2,663.40	26.60	
Cadigan, Fred W., caretaker	1,368.73		
Cain, Charles T., section foreman	3,315.00		
Cain, Melvin E., laborer-truck driver	1,214.43		
Cain, Walter F., state police guard	375.00		
Cairns, John J., gate tender	2,029.84		
Callahan, Timothy L., laborer	2,351.08		
Callison, Rufus G., blacksmith	3,354.94		
Cameron, Malcolm S., engineer assistant	3,710.00		
Cameron, Robert R., chainman	450.00		
Cameron, Thos. W., weighmaster	2,778.95		
Campbell, Bobby D., truck driver	118.40		
Campbell, Bud, state police guard	818.55		
Campbell, Charles E., office assistant	3,212.43		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Campbell, Clarence M., carpenter	$3,153.01	$	$
Campbell, Dale J., laborer	2,367.15		
Campbell, Joel, laborer	38.08		
Campbell, Joseph K., shop superintendent	4,815.00	.75	
Campbell, Roland F., truck driver	281.20		
Campbell, Thomas H., laborer	184.52		
Cannon, Clarence D., engineer superintendent	5,230.00	81.84	
Cannon, Everett E., ex-gang foreman	3,740.00		
Cannon, James A., laborer	541.54		
Cantril, Odist, section foreman	3,315.00		
Capps, Cliva L., laborer	197.04		
Capps, Doil H., truck driver	805.77		
Carbaugh, Chester W., laborer	276.52		
Carbough, Harold C., pilot grader operator	948.87		
Card, Roger E., head chairman	2,810.00	10.25	
Carder, A. B., section foreman	3,315.00		
Carey, Herbert L., office assistant	2,033.38	4.00	3.16
Carlin, Emery L., section foreman helper	2,891.14	38.62	
Carlin, James H., yardman	2,870.64		
Carlton, Mitchell C., truck driver	925.00		
Carlton, Roy C., truck driver	116.28		
Carns, Clarence E., section foreman	3,315.00		
Carpenter, Lowell C., sign crew foreman	3,390.00	491.50	
Carpenter, Robert W., storeroom serviceman	2,789.70		
Carpenter, Theodore T., laborer	2,282.99		
Carper, Henry W., truck driver	2,418.29		
Carr, Millard E., truck driver	1,715.41		
Carslake, Emil C., motor grader operator	207.64		
Carson, Clifford T., truck driver	2,766.98	3.40	
Carter, Clarence S., section foreman	2,942.00		
Carter, Florence R., stenographer	2,790.00		
Carter, Hugh Glen, sign crew helper	2,474.69	708.55	
Carter, James L., laborer	397.16		
Carter, Perry E., laborer	23.76		
Carter, Walter D., section foreman	3,315.00		
Casebeer, Geo. W., street foreman	3,452.44	.95	
Casebeer, Harry W., truck driver	422.74		
Casey, Bernard J., bridgeman	1,694.60		
Casey, Forrest W., paving foreman	4,304.38	7.20	
Casey, James A., caretaker	2,265.00		
Cash, L. Richard, laborer	33.28		
Cason, Paul R., truck driver	2,801.35		
Casteel, Walter S., laborer-truck driver	207.63		
Castle, David A., laborer	1,999.14		
Cation, Lila L., stenographer	2,630.00		
Catron, Wm. P., section foreman helper	1,986.22		
Causey, Robert G., laborer	656.20		
Cauthers, James T., laborer	258.76		
Cauthers, Wm. H., watchman	1,346.02		
Cayette, Jack C., state police guard	475.81		
Cazzell, John, bridgeman	2,414.88		
Cearley, Charles O., laborer-truck driver	2,350.16		
Chalmers, James, state police guard	818.55		
Chamberlin, Dwight A., laborer-painter	289.60		
Chamberlin, Gertrude M., secretary	3,254.83		
Chandier, C. Russell, laborer	144.16		
Chandler, Edward Sherman, truck driver	1,184.99		
Chandler, James M., flagman	237.90		
Chandler, Lloyd R., resident engineer	6,030.00	142.60	
Chandler, Wm. E., division engineer	9,600.00	640.05	
Chapin, Viola, stenographer	2,423.00		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Chapman, Albert L., transitman	$3,710.00	$ 24.30	$
Chapman, John C., resident engineer	6,030.00	15.45	
Chapman, Leonard L., laborer	302.78		
Chapman, Merton R., truck driver	2,761.34		
Chapman, Victor L., truck driver	2,574.94		
Chase, Orrin A., assistant staff engineer	7,200.00	7.45	
Chase, Richard O., chainman	625.19	4.05	
Chastain, Wm. T., laborer	65.52		
Cheek, Orville R., laborer	366.66		
Cherrington, Pat, key punch operator	664.67		
Chestnut, Floyd T., Sr., bridge oper.-watchman	2,790.00		
Chestnut, Floyd T., Jr., tender driver	1,901.18		
Chestnut, Glenn A., truck driver	2,471.89		
Chidsey, Edward F., resident engineer	6,030.00	263.55	
Chilles, David E., sign shops foreman	3,325.00		
Chilson, Sanford W., laborer	2,220.16		
Christensen, Chris, section foreman helper	2,912.66		
Christensen, Walter S., laborer	66.28		
Cisney, Arlee G., laborer	157.82		
Cisney, Richard D., laborer	114.98		
Clanton, John A., lineman	1,432.23		
Clardy, Jack, laborer	35.28		
Clark, Elmer E., state police guard	291.67		
Clark, Erwin L., sign crew foreman	3,397.00	1,194.60	
Clark, Gordon W., laborer	2,190.21		
Clark, Howard V., truck driver	2,375.74		
Clark, Joseph A., bridge foreman	4,053.56	115.90	
Classen, Lloyd E., laborer	94.30		
Claus, Irving C., truck driver	2,455.39		
Clawson, Otto W., mechanic	3,410.59		
Claypool, T. Lawrence, laborer-truck driver	1,859.28		
Cleaver, John E., section foreman	3,315.00		
Clem, Ralph A., head lineman	218.08		
Clester, Charles A., laborer-truck driver	544.12		
Cleveland, Lester W., bridgeman	1,011.38		
Clevenger, Jim Caleb, truck driver	225.24		
Clevenger, Wm. C., laborer	68.64		
Clifford, Frank W., laborer	194.04		
Clift, Joel H., truck driver	100.64		
Clifton, Charles B., oiling foreman	4,385.00	8.25	
Clinefelter, C. Lester, inspector	3,955.00		
Clough, Huron W., commissioner		494.90	316.65
Cloyd, Donald, shoveler	352.50		
Clutter, Bryson T., sign crew helper	3,184.14	449.10	
Clymer, Edward H., engineering supervisor	5,115.00	468.65	
Coble, Wm. P., laborer	50.40		
Cochell, James Wm., stakeman	479.03		
Cofer, Virgil L., shoveler	71.56		
Coffey, Victor H., dist. maint. supt.	6,030.00	377.15	
Coffman, Norman R., laborer	134.82		
Coffman, William, laborer	2,313.14		
Cole, Wm. C., truck driver	295.28		
Coleman, Anthony J., truck driver	2,305.92		
Coleman, John J., truck driver	1,420.64		
Collier, Charles D., draftsman	4,110.00	47.60	
Collier, E. A., staff engineer	9,956.67	204.45	
Collins, Clarence M., (Don C.), lab. assistant	3,330.00		
Collins, William F., right of way agent	6,145.00	962.45	
Combs, Donald R., spotting foreman	1,698.24	5.90	
Combs, Everett L., burnerman	719.91		
Combs, Verlin, truck driver	343.51		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Comegys, Elmer A., bridgeman	$2,719.06	$ 16.75	$ .....
Confer, Harry P., section foreman	3,315.00	.....	.....
Confield, Wm., pilot car driver	169.20	.....	.....
Conger, Lawrence L., laborer	1,223.45	.....	.....
Conger, Maurice, state police guard	719.59	.....	.....
Conger, Robert L., laborer	529.11	.....	.....
Conner, Perry F., weighmaster	2,909.51	24.77	11.40
Conner, Thomas N., laborer	94.20	.....	.....
Conrad, Joseph M., laborer	330.12	.....	.....
Converse, Carol E., section foreman	3,315.00	.....	.....
Cook, Archie A., power mower operator	2,661.85	.....	.....
Cooke, Wm. H., checker	91.00	.....	.....
Cooley, Joseph L., chainman	2,546.06	.....	.....
Coons, Merle M., truck driver	169.40	.....	.....
Cooper, Albert E., laborer	2,160.64	.....	.....
Cooper, Forrest B., dist. maint. supt.	6,030.00	172.60	.....
Cooper, Juan G., section foreman	3,315.00	12.60	.....
Cooper, Taylor J., motor grader operator	2,738.89	.....	.....
Corcoran, James F., truck driver	1,372.16	.....	.....
Cornell, Charles A., head chainman	3,105.00	45.75	.....
Cornett, Clay M., transitman	4,170.60	40.60	.....
Corneil, George W., checker	307.67	.....	.....
Cottingham, Willard, temp. section foreman	2,645.52	.....	.....
Cotton, Robert V., field assistant	3,295.00	81.50	.....
Couper, Stuart J., draftsman	2,446.84	2.90	.....
Courson, Richard F., inspector	3,230.00	.....	.....
Courtney, Dale B., laborer	40.12	.....	.....
Courtney, William A., chainman	1,193.50	2.45	.....
Covert, Wm. W., truck driver	2,548.39	.....	.....
Cox, Charles M., laborer	316.27	.....	.....
Cox, Geo. R., truck driver	234.32	.....	.....
Cox, Guy, laborer	439.24	.....	.....
Cox, Howard S., computer	3,630.00	17.10	.....
Cox, Norman Paul, section foreman	3,215.00	.....	.....
Cox, Oliver R., foreman	3,408.69	.....	.....
Cox, Orval A., laborer-truck driver	2,495.18	.....	.....
Cozad, Rodney W., right of way agent	3,451.77	1,178.70	.....
Craddock, Paul P., laborer	206.64	.....	.....
Crampton, Wm. A., laborer	2,139.80	.....	.....
Crandall, Claude E., laborer-truck driver	1,643.48	.....	.....
Crandall, Fredrick B., engineer supervisor	4,263.50	.....	.....
Crane, Claude C., motor grader operator	2,685.98	.....	.....
Crane, Edward C., laborer	73.08	.....	.....
Craven, Cornelius A., chainman	480.71	.....	.....
Crawford, Daniel B., assistant carpenter	2,775.76	.....	.....
Crawford, Edgar D., laborer	73.08	.....	.....
Crawford, Middleton T., laborer	65.52	.....	.....
Crawford, W. Manning, raker	1,287.79	.....	.....
Crawley, Benjamin C., state police guard	419.35	.....	.....
Crawley, Cyril C., section foreman	3,315.00	23.00	.....
Cress, Glenn J., truck driver	2,684.84	6.50	.....
Crews, W. C., supervisor of permits	5,658.00	.....	.....
Cribbins, Wm. R., truck driver	2,478.66	.....	.....
Crocker, Claude W., transitman	3,975.00	.....	.....
Cromwell, Wm. O., section foreman helper	2,431.91	.....	.....
Cronin, Victor, truck driver	41.44	.....	.....
Cronin, Leo. A., laborer	571.09	.....	.....
Cronin, Lloyd V., bridgeman	1,506.86	.....	.....
Crosland, Arthur D., boilerman	2,534.03	.....	.....
Cross, Marvin B., laborer	1,718.57	.....	.....
Crosslin, Clarence G., miner's helper	687.28	.....	.....

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Crowell, Byron W., carpenter	$3,184.56	$	$
Crowley, Elvie R., laborer	326.62		
Cruz, Fidencio, appr. raker-raker	243.17		
Cruzen, Gladys G., stenographer	969.33		
Cummings, Clarence, truck driver	2,412.38		
Cunningham, Robert, laborer	57.12		
Cunningham, Thos. C., section foreman helper	2,574.50		
Currie, Mabel, secretary	3,429.20	52.40	
Currier, Wm. W., section foreman	3,315.00		
Curry, Lee O., rollerman	1,779.94	3.85	
Curtis, Fred, L., ex-gang foreman	3,154.06		
Curtis, Robert L., laborer-truck driver	211.56		
Cutler, Oscar, assistant staff engineer	6,750.00	759.70	
Cutler, Robert M., section foreman	3,310.17		
Dade, Lester R., section foreman	3,315.00		
Dahlin, Edward E., truck driver	2,352.17		
Daimler, Cecil F., street foreman	3,722.98		
Dakin, Ivan W., general foreman	4,407.95		
Dalbec, Raymond D., truck driver	535.22		
Daley, LeRoy, office janitor	2,125.00		
Daniel, Carl C., inspector	3,950.00		
Darby, Wilbur M., engineering supervisor	4,850.00		
Dark, Stephen C., mechanic	3,613.10	1.10	
Darrar, Carl C., section foreman helper	2,585.00		
Darting, George E., truck driver	2,561.20		
Dascher, Henry, state police guard	295.83		
Davenport, Lloyd L., office manager	3,447.26	14.80	
David, Chas. W., loader spotter	1,054.83	3.45	
Davidson, Asa D., laborer	437.73		
Davidson, Herschel W., painter	2,949.16		
Davidson, J. Frank, section foreman	3,315.00		
Davidson, Lester C., mechanic	3,375.29		
Davidson, Ralph H., laborer	176.40		
Davidson, Ray L., truck driver	2,437.70		
Davidson, Wm. Glenn, street foreman	3,540.73		
Davies, LeDoyt M., laboratory assistant	3,770.00		
Davies, Paul E., laboratory assistant	3,770.00		
Davis, Albert E., laborer	58.90		
Davis, George F., raker	1,575.90		
Davis, Glenn O., laborer-truck driver	265.16		
Davis, Harrison H., ex-gang foreman	3,740.00		
Davis, Hershal D., laborer	37.80		
Davis, H. Jean, painter	185.74		
Davis, John Humphrey, state police guard	316.67		
Davis, Joseph M., laborer	876.19		
Davis, Lewis L., watchman	1,216.07		
Davis, Robert W., laborer	285.46		
Davis, Wm. C., watchman	1,324.81		
Day, Albert, laborer	40.32		
Day, Arlo, pitman	27.20		
Dayton, Durlan A., state police guard	66.67		
Daywalt, Wilson S., laborer	458.62		
Dean, Arthur B., resident engineer	6,030.00		
Dean, Avon J., computor	2,010.67	30.90	
Deardorff, Joe G., laborer	2,353.94		
Dechert, Otto, laborer	110.88		
Deck, Marvin F., laborer	59.80		
De Coursey, Paul B., load spotter	346.45		
De France, Irving A., assistant staff engineer	6,190.84	33.25	
Defries, Chas. E., laborer	160.76		
De Geeter, Peter, assistant carpenter	2,963.70		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
De Graw, Clarence, truck driver	$1,814.69	$	$ .....
De Joode, Arthur B., foreman	3,662.72	.....	.....
De Lashmutt, Perl F., lineman and head lineman	1,490.08	.....	.....
Delco, Lew S., section foreman helper	2,638.04	2.70	.....
Delp, Sidney C., truck driver	2,549.03	.....	.....
Delyria, George E., mechanic	2,896.62	.....	.....
Demaris, Bert G., truck driver	221.64	.....	.....
Denham, Fred A., carpenter	3,364.32	.....	.....
Denning, John C., laborer	294.21	9.10	.....
Dennis, Patrick, M., watchman	283.76	.....	.....
Dennis, Robert A., watchman	181.92	.....	.....
Denson, Walter G., truck driver	2,798.86	.....	.....
Denstedt, Leslie D., section foreman	3,066.83	4.25	.....
Depew, Carmon L., flushcoater	126.63	.....	.....
De Roest, Mick, power mower operator	369.79	.....	.....
Derrick, Darril Vern, bridgeman	1,489.74	.....	.....
DeSart, Delmer G., commission secretary assistant	4,830.00	17.15	.....
De Souza, J. W., general right of way agent	8,400.00	759.00	12.45
Deuber, Paul G., laboratory assistant	3,466.03	32.30	.....
Devers, J. M., attorney	12,000.00	824.75	4.00
De Vine, Chester N., assistant special mechanic	243.22	.....	.....
Devine, Mainor R., truck driver	2,456.65	.....	.....
De Vore, Amos F., laborer	2,093.88	.....	.....
De Vore, Elvyn, truck driver	2,736.66	.....	.....
Dew, Chas. H., laborer	32.64	.....	.....
Dey, James R., laborer	80.64	.....	.....
Dey, Ross K., section foreman helper	2,880.91	.....	.....
Deyo, Clinton C., weighmaster	1,558.55	.....	.....
Diamond, Mike, laborer	47.88	.....	.....
Dick, Ellsworth W., mower operator	1,952.46	.....	.....
Dick, Norman C., section foreman	2,666.83	3.10	.....
Diehl, Henry, section foreman helper	2,729.06	.....	.....
Dietz, Edward H., watchman	1,543.49	.....	.....
Dietz, Ed. P., operator	1,195.47	70.55	.....
Dietz, Eugene J., mechanic	3,570.20	.....	.....
Dietz, Geo. E., stockman	2,845.00	.....	.....
Dillabough, Bryce L., caretaker	3,060.00	.....	.....
Dillard, C. Henry, spotting foreman	3,121.94	3.10	.....
Dillenburg, Floyd E., miner's helper	295.12	.....	.....
Dillingham, Frank C., caretaker	2,727.50	.....	.....
Dimick, Ralph C., raker	2,714.22	.....	.....
Dimit, James F., state police guard	312.00	.....	.....
Dinsmore, Elmer Dale, trk. dr.-kettleman	1,862.24	.....	.....
Dishner, Calvin A., truck driver	1,560.28	.....	.....
Dishner, Floyd A., trk. dr.-powderman	2,277.60	.....	.....
Divelbiss, George E., state police guard	173.39	.....	.....
Dixon, Frank B., inspector	145.00	.....	.....
Dixon, Lawrence H., chainman	253.50	.....	.....
Dizney, Clarence L., carpenter	3,158.62	.....	.....
Dizney, Thad M., plumber	267.00	.....	.....
Doane, Silas W., asst. bridge foreman	3,354.97	.....	.....
Dodson, Vess W., laborer	128.16	.....	.....
Doefler, Ernest A., sign crew foreman	3,030.00	775.75	.....
Doman, Wm., laborer	316.14	.....	.....
Domogalla, Vern F., stencil cutter	3.390.00	658.65	.....
Don, James, transitman	4,110.00	.....	.....
Donnell, Wilford A., oiler driver	2,977.65	13.65	.....
Doran, Chauency K., laborer	284.24	.....	.....
Dorn, Arthur Z., section foreman helper	3,049.48	.....	.....
Dotson, Clinton O., laborer	146.65	.....	.....
Dotson, Elizabeth, clerk	924.00	.....	.....

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Dotson, Jack J., truck driver	$ 351.01	$	$
Dotson, Miles R., truck driver	292.44		
Doty, Floyd D., flushcoater	333.78		
Dougherty, Ralph, section foreman helper	2,596.61		
Doughton, Ellis C., laborer	2,248.95		
Douglas, Vernon, boilerman	2,304.33		
Dow, Leonard N., transitman	4,103.75		
Dowling, Austin A., truck driver	2,343.02		
Downey, George B., watchman	259.20		
Downey, Harry L., head chainman	3,057.10	113.95	
Downing, Louis A., truck driver	148.24		
Drager, Alfred S., assistant carpenter	1,390.31		
Drager, George E., truck driver	1,628.26		
Drake, Everett L., truck driver	103.97		
Dralle, Albert D., truck driver	345.07		
Dresser, Marshall R., resident engineer	6,030.00	159.80	
Drollinger, Herbert M., laborer-truck driver	2,243.47		
Dubell, Elic A., axeman	1,291.29		
Duff, Robert V., laborer	10.08		
Duffy, Arthur, transitman	4,110.00	34.60	
Dugan, B. Evert, caretaker	3,060.00		
Duke, Felix, C., state police guard	802.42		
Dumire, Leroy E., truck driver	1,958.16		
Dunaven, William F., truck driver	2,346.28		
Dunn, Charles W., weighmaster	2,652.56		
Dunn, John H., laborer-grader operator	1,259.70		
Durland, Wm. B., laborer	37.80		
Duvall, Delbert G., working foreman	3,131.78		
Duvall, Donald A., laborer	312.48		
Duvall, Herbert F., truck driver	2,418.85		
Duvall, Plynn	1,641.14		
Dye, Alonzo C., laborer	1,805.39		
Dyer, Cleo N., transport driver	2,174.77		
Eagles, Ira D., laborer	270.90		
Earle, Harley J., laborer-truck driver	418.84		
Eason, F. David, division engineer	9,600.00	361.45	
Eaves, Willard M., laborer	125.90		
Eberly, Chas. F., truck driver	111.37		
Ebsen, Albert L., laboratory assistant	3,650.00		
Eby, Isaiah, M., watchman	277.98		
Eddy, Carl G., section foreman	3,315.00		
Eden, John W., head chainman	1,609.03		
Edgar, Allen C., truck driver	146.88		
Edmiston, Ralph A., motor grader operator	2,723.52		
Edmonds, Allen R., truck driver	179.86		
Edwards, Alvin, pull blade operator	2,504.46		
Edwards, Forrest L., office assistant	226.45		
Edwards, Frank, section foreman	2,520.39		
Edwards, Geo. B., state police guard	279.17		
Edwards, Julian A., mechanic's helper	2,933.21		
Edwards, Lennis L., section foreman	3,315.00		
Edwards, Tom, resident engineer	5,835.00	118.20	
Eggstaff, Ralph, engineer assistant	4,305.00	112.25	
Ehlke, Rudolph B., laborer	35.64		
Eichler, Carl E., laborer	1,008.30		
Eilert, Kenneth L., office assistant	135.00		
Einfeldt, Frank J., truck driver	160.88		
Eksman, Gus C., inspector	2,834.47	21.55	
Elder, Marguerite, stenographer	2,580.00		
Elligsen, Fred M., state police guard	501.43		
Elliott, Fred H., bridgeman	228.40		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Elliott, Seth, teamster	$1,238.04	$	$
Elliott, W. Elbert, truck driver	2,653.97		
Ellis, Wm. G., apprentice raker	1,315.41		
Ellison, Howard L., truck driver	41.40		
Elspas, Chester A., inspector	3,130.00	27.30	
Ely, Earnest E., operating watchman	3,165.00		
Emele, Donald E., laborer	40.32		
Emholt, Clifford L., state police guard	818.55		
Emmerich, Frank J., helper	2,905.62		
England, Isely B., section foreman	3,315.00		
English, Elvin R., operating watchman	66.67		
English, Pete L., laborer-truck driver	749.15		
Enneberg, Carl T., section foreman helper	2,574.61		
Enos, Paul R., section foreman helper	2,460.80	3.80	
Enstrom, Geo., Jr., laborer	65.52		
Epler, Max B., laborer	52.92		
Epperly, Alfred K., mechanic's helper	2,659.23		
Epperly, Charles S., mechanic's helper	3.019.32	103.71	
Epperson, Burgess L., section foreman	3,315.00	11.45	
Epperson, Robert, laborer	65.96		
Erbe, Charles F., mechanic	3,651.80	5.55	
Erickson, Einer W., computer	3,615.48		
Erpelding, Magdalene M., stenographer	2,439.07		
Erskine, Henry, section foreman	3,315.00	3.50	
Erwin, Hugh G., truck driver	2,599.08		
Esch, Harry M., office assistant	2,963.56		
Esmay, John W., section foreman helper	2,891.21		
Esmay, Robert J., bridgeman	961.70	8.25	
Etzel, I. Geo., shops office man	3,460.00		
Evans, Alvin E., laborer-truck driver	2,347.48		
Evans, Arley O., truck driver	1,460.62		
Evans, Wilbur T., section foreman helper	2,811.87		
Evans, Willis E., laborer-truck driver	2,300.93		
Everson, John D., engineer designer	4,555.00	69.65	
Everson, Lynn E., head chainman	2,752.15		
Ewan, Elbert, section foreman helper	2,876.76		
Fair, James D., truck driver	421.98		
Fairbanks, Homer, section foreman helper	2,835.96		
Fairchild, Russell S., laborer	970.16		
Falkenhagen, David B., office assistant	3,630.00	10.65	
Fanning, Floyd, truck driver	2,743.60		
Faris, Guy S., section foreman	3,175.91		
Farnam, Lester B., mechanic	3,977.08	81.55	
Farrar, Frederic W., dist. maint. supt.	5,805.00	204.70	
Farrell, Wm. V., flagman	1,445.29		
Faulkner, Hess, state police guard	375.00		
Faust, Robert M., head chainman	2,690.10		
Fay, Earl C., section foreman	3,315.00		
Ferebee, James B., section foreman helper	2,840.71	2.35	
Ferguson, Clarence S., retort operator	3,411.80	1.00	
Ferguson, Earl W., section foreman helper	2,775.70		
Ferguson, Edgar O., head chainman	1,923.07	74.40	
Ferguson, Jack L., bridgeman	2,715.25		
Ferguson, John C., laborer	2,328.13		
Ferguson, Lee, section foreman	3,315.00		
Ferguson, O. Gail, stenographer	1,628.77		
Ferguson, Wm. H., laborer-truck driver	1,962.10		
Ferree, George J., section foreman	3,315.00		
Ferris, Roy S., engineer assistant	3,300.00	3.00	7.32
Fery, Fred J., man and team	1,235.21		
Fialka, Ardean Wayne, chainman	1,704.09	11.50	

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Fields, Glen, truck driver	$2,032.51	$	$
Fields, Pryne, laborer	448.24		
Fink, Jack, head lineman and paint machine oper.	567.90		
Finkbiner, Nilsson M., engineer of materials	7,525.00	116.70	
Finley, Fred, laborer	58.12		
Finley, Joe B., state police guard	826.61		
Fish, Gilbert R., stockman	2,455.83		
Fish, Warren D., bridgeman	2,449.87		
Fisk, Ormal E., section foreman	3,315.00		
Fitch, Burr E., laborer	92.30		
Fitch, Wilford H., truck driver	2,272.60		
Fitzpatrick, Robert F., caretaker	310.00		
Flannagan, Harry H., operating watchman	2,790.00		
Fleetwood, James O., laborer-power mower oper.	401.78		
Fletchall, Richard J., laborer-pitman	111.80		
Fletcher, Agnes M., stenographer	2,430.00		
Floch, Robert R., bridge foreman	4,100.00		
Folliett, Warren D., carpenter	2,967.60		
Folston, James E., transitman	4,110.00	45.55	
Forbes, Frank A., section foreman helper	2,218.26		
Forbes, Guy O., rollerman	2,747.85		
Forbes, Herbert W., laborer-truck driver	296.04		
Ford, Austin J., dist. maint. supt.	5,935.64	209.55	
Fordice, James, truck driver	41.44		
Foreman, Theodore R., shoveler	121.79		
Forrest, Russell A., transitman	4,110.00		
Forty, Bernal Vern, section foreman	3,291.00		
Fosnaugh, Ralph W., laborer	339.57		
Fossen, Antone A., resident engineer	4,770.00	86.75	
Foster, Charles A., laborer-truck driver	344.52		
Foster, Jack J., shoveler	359.24		
Foster, Jesse S., chainman	180.32		
Foster, Vertie J., truck driver	981.77		
Fowler, Cleve M., shoveler-rollerman	1,973.96		
Fox, Dee, section foreman	3,290.08		
Fox, Edward R., chainman	1,040.80	45.20	
Fox, Harvey H., materials checker	99.00		
Frack, Wm. O., motor grader operator	2,677.06		
Francis, James, office assistant	3,630.00		
Franklin, Earl K., chainman	1,106.52		
Fransen, Olaf G., timekeeper	3,099.74		
Frasier, Herbert F., state police guard	576.43		
Fredricks, Marvin F., truck driver	84.25		
Freel, Walter W., laborer	46.92		
Freeman, Homer F., chainman	1,770.00		
French, Marvin F., truck driver	40.22		
Fretwell, Willie, janitor	437.14		
Frey, Clarence L., stakeman	281.39		
Frey, Frank C., Jr., section foreman	3,315.00		
Frickey, Conrad L., laborer	229.95		
Frisbie, Howard L., truck driver	35.15		
Frohreich, Edwin R., apprentice raker	104.30		
Fryer, Eugene K., shoveler	352.25		
Fryer, Vivian B., stenographer	2,500.00		
Fuchs, Fred P., chainman	2,038.07		
Fulmer, Jeanette L., stenographer	1,240.01		
Fulp, E. Russell, watchman and janitor	2,609.25		
Fussel, John D., plant foreman	3,033.02		
Gabriel, Lloyd W., chief operator	3,870.00		
Gage, Ray T., pitman	100.16		
Gale, Henry E., inspector	3,635.81	28.15	

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Gall, Cecil C., resident engineer	$6,030.00	$ 75.45	$
Gallacher, Alexander McK., section foreman	3,315.00		
Gallino, Roy Walter, truck driver	562.26		
Gallino, Walter J., watchman	320.83		
Gamble, Lloyd C., truck driver	172.28		
Gann, Fredrick, truck driver	2,506.02		
Gardiner, Clifford L., right of way agent	5,880.00	1,593.55	
Gardner, Cecil A., engineering supervisor	5,430.00	64.90	
Gardner, Ennis D., miner's helper	2,021.06		
Gardner, Harry Raymond, state police guard	449.03		
Garland, Kenneth K., truck driver	251.28		
Garrison, Bryan, section foreman helper	2,867.25		
Garrow, Arthur T., checker	2,268.71	49.17	
Gatchell, Francis, office assistant	165.48		
Gates, Otis O., truck driver	283.80		
Gaulke, Otto F., laborer-flagman	214.84		
Gayman, Stanley R., retort operator	3,212.87	7.85	
Geddes, Joe F., truck driver	2,446.07		
Gentry, Geo. H., operator watchman	2,761.54		
George, Ralph L., truck driver	313.20		
Gibbons, Wm. J., operator	2,650.50		
Gibby, Leonard A., truck driver	160.84		
Gibson, Wm. M., paving foreman	4,354.16	29.85	
Gifford, Ralph I., photographer	4,830.00	344.10	
Gilbert, Ray D., assistant shop office man	2,875.00		
Giles, Wm. E., leverman	276.82		
Giles, Wm. M., laborer	173.88		
Gilkison, Ralph E., rigger	3,066.42		
Gill, Virgil L., section foreman	3,318.39		
Gillilande, Geo. R., flagman	1,117.48		
Gillette, Ralph M., section foreman	3,315.00		
Gillette, S. B., administrator	7,200.00		
Gilliland, Arthur, laborer	745.68		
Gilliland, Max M., truck driver	2,452.60		
Gillmer, Clyde C., section foreman	3,290.27		
Gilmore, Robert L., office assistant	120.00		
Gilpin, Clifton H., chainman	432.58		
Gilsdorf, Maycellus J., kettleman	298.55		
Gilstrap, Robert L., plant foreman	2,198.49		
Givens, Earnest M., laborer	316.26		
Givens, Gilfred Y., laborer	85.68		
Glaisyer, H. B., commission secretary	8,400.00	190.60	
Glasgow, Chas. E., team and man	46.00		
Glasscock, Harold C., laborer	988.26		
Glazier, Wilber, laborer-truck driver	122.32		
Glines, Leon L., laborer-truck driver	2,108.76		
Godsey, Chester, section foreman helper	2,770.68		
Goe. C. Gerald, office assistant	2,621.92		
Gohl, Edward A., section foreman	3,205.46		
Gohrke, Dorsme, stenographer	283.33		
Goin, Everette E., truck driver	2,347.50		
Goldey, John H., laborer	103.32		
Goode, Don D., assistant supervisor of permits	3,386.67	12.25	
Godell, Vernon N., apprentice raker	1,956.17		
Goodrich, Omer L., watchman	1,256.43		
Gorden, Fred, laborer	319.88		
Gordon, Claude W., assistant rigger	2,471.60		
Gordon, Frank J., truck driver	2,733.51		
Gould, George L., truck driver	1,268.13		
Grabenhorst, Rex A., tender driver	2,217.93		
Grabenhorst, Wm. C., mechanic	2,716.51		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Graham, John D., office assistant	$1,840.56	$	$
Graham, John H., operating watchman	2,790.00		
Graham, Robert R., truck driver	1,231.61		
Gramse, Adolph, laborer-pull grader operator	2,504.89		
Gramse, Fred M., shovel operator	2,829.21		
Grant, Raymond L., laborer	148.68		
Grassmeyer, Chas., assistant pruner	1,619.32		
Graven, Elmer W., section foreman helper	2,923.06		
Gray, Robert F., weighmaster	2,952.51		
Greb, Alvin P., raker	2,373.50		
Green, Clarence W., office man	3,630.00		
Green, Norman C., lineman	127.84		
Greene, Walter N., section foreman	3,315.00		
Greenslit, Bert, man and team	105.98		
Gregg, Lloyd B., auditor	4,135.00		
Gregory, Pat, chainman	1,592.58	2.85	
Griffith, Rolla D., laborer	1,380.84		
Grimes, James F., laborer	246.96		
Grindstaff, Paul P., laborer	2,041.58		
Gronewald, Gail J., checker	1,271.67		
Grubbe, N. Nelson, weighmaster	2,850.56		
Gruchow, Grant A., mechanic	3,410.96	59.60	
Gruis, Don E., truck driver	2,558.83		
Gruis, Edward, painter	2,767.87		
Gullikson, Evelyn L., clerk	2,775.67		
Haag, Carl A., bridgeman	2,572.44		
Haas, Edward, laborer	63.00		
Hacker, Clarence, laborer	10.08		
Haflich, Virgil S., helper	2,158.34		
Haft, Roy, laborer-power mower operator	2,324.69		
Haga, Lester E., section foreman helper	2,897.84		
Hagemann, Charles F., laboratory assistant	4,330.00		
Hagner, Leonard R., tender driver	175.40		
Haines, Herman A., laborer	178.92		
Haines, Lelin L., truck driver	2,422.63		
Hale, Carl P., laborer	1,001.71		
Hale, Henry J., laborer	118.44		
Hales, Lewis I., laborer	160.02		
Halik, Emil F., master mechanic	7,775.00	34.30	
Hall, Andrew A., carpenter	3,002.83		
Hall, Egbert A., laborer	233.73		
Hall, Frank L., engineering supervisor	4,670.00	32.90	
Halpenny, Claire H., chainman	2,365.49	17.05	
Halter, Arnold D., shoveler	336.92		
Hamby, Jn. M., state police guard	500.00		
Hamilton, Claude A., laborer	85.68		
Hamilton, Elmer E., painter	300.44		
Hamilton, Gay E., stenographer	2,406.67		
Hamilton, Hollis H., foreman	2,929.16		
Hamlin-Howard, James, timekeeper	239.51	4.90	
Hammack, Jonas A., motor grader operator	3,140.16	4.90	
Hamman, Gus, laborer	1,665.12		
Hammers, Gilbert J., laborer	21.76		
Hammersley, Glen W., motor grader operator	1,797.00		
Hammond, Albert F., bridgeman	1,571.48	7.85	
Hampton, James L., bridgeman	1,095.88		
Hamrick, Clyde L., truck driver	258.31		
Hanley, Jim D., truck driver	464.32		
Hannum, Arthur L., tamperman	1,092.34		
Hannum, Willard F., raker	2,533.21		
Hansen, Claude H., laborer	117.52		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Hansen, Lawritz, laborer	$ 422 60	$	$
Hansen, Theo F., watchman	1,738.08		
Hanson, Howard O., laborer	73.40		
Hanson, Roy F., boilerman	1,900.39		
Harbert, Melvin E., computer	3,[illegible]78 89		
Hardcastle, Donald Emmett, head chainman	3,105.00	4.15	
Hardie, James A., cost accounts supervisor	4,830.00		
Harksen, Fredrick, laborer	415.32		
Harmon, Ray L., watchman	1,085.30		
Harms, Herman R., laborer	972.63		
Harnish, Raymond B., section foreman	3,315.00		
Harnsberger, Edward A., carpenter-foreman	3,581.92		
Harnsberger, John M., blacksmith foreman	3,599.68		
Harnsberger, Wilbur E., mechanic	3,755.96	5.35	
Harper, James M., truck driver	2,496.29		
Harra, Garnet W., engineering supervisor	5,330.00	67.30	
Harris, Howard T., bridgeman	1,278.44		
Harris, Oscar E., shop watchman	2,605.00		
Harris, Ralph E., painter	15.54		
Harris, Ray R., section foreman helper	1,393.60		
Harrison, Andrew G., truck driver	2,563.36		
Harrison, Kenneth L., truck driver	1,007.02		
Hart, Bob E., paintman	998.47		
Hartrampf, T. Ross, draftsman	3,738.39		
Harvey, Robert R., checker	60.67		
Harvey, Sybyl, stenographer	365.16		
Harwood, Charles A., rollerman	1,887.68		
Haselwander, Henry M., truck driver	2,432.55		
Hash, George, laborer	117.60		
Haskell, Chester M., section foreman helper	2,594.49		
Haskin, Wm. H., office assistant	1,276.70		
Hatch, Arlie D., chainman	1,249.35		
Hatcher, Clarence S., laborer	68.04		
Hathaway, Ella C., clerk	3,030.00		
Hathaway, Jack E., laborer	40.12		
Hathaway, Jess D., assistant foreman	3,137.72	33.65	
Hatter, Joe G., truck driver	519.47		
Haviland, Louis P., caretaker	2,403.39		
Haviland, Virgil J., lineman	35.36		
Hawke, Malcolm H., chief accountant	8,250.00		
Hawkins, Charles H., laborer-truck driver	2,426.84		
Hay, Daniel Lee, truck driver	2,385.61	2.80	
Hayes, Bob, truck driver	33.08		
Hayes, J. Floyd., section foreman helper	2,677.46		
Hayes, Raymond, truck driver	2,509.64		
Haynes, Arthur L., assistant bridge carpenter	2,596.04		
Haynes, Cary D., transitman	4,110.00		
Haynes, Gail E., state police guard	300.00		
Hays, Hawry C., lineman	129.88		
Hays, Vernon R., section foreman helper	2,604.65		
Hayse, Frank, motor grader operator	1,838.05		
Hayse, James A., laborer	160.04		
Hayse, Joe F., laborer	138.64		
Hazelton, Charles E., laborer-truck driver	2,065.00		
Head, Cecil W., office assistant	2,765.00		
Head, Guy L., motor grader operator	277.10		
Head, J. Al., engineer assistant	246.77		
Heap, Thomas, inspector	425.00		
Heath, Harold H., timekeeper	469.68		
Heath, Loyal L., laborer	722.80		
Hebel, Birdie Dean, clerk	1,735.48		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Heckart, Geo., flagman	$1,410.04	$	$
Heckinger, Ray L., street foreman	3,064.18		
Hedlund, Paul J., laborer	106.40		
Hedrick, Charles D., paving foreman	4,664.84	8.95	
Heimerman, Peter J., miner's helper	231.20		
Heinsohn, Louis A., truck driver	231.66		
Heinz, Leslie E., laborer	1,707.10		
Heitz, Howard W., laborer-truck driver	1,262.47		
Heizer, Martin L., transport driver	228.40		
Helzer, Bernadette J., stenographer	233.33		
Heman, Daniel I., laborer	141.34		
Hemmers, Otto E., truck driver	89.80		
Henderson, Orville E., section foreman helper	2,859.16		
Hennies, Albert H., carpenter	2,094.49		
Henrikson, Inger J., stenographer	1,830.00		
Hensley, James A., truck driver	977.74		
Hensley, James E., truck driver	118.60		
Herbage, Tillman E., state police guard	233.87		
Herberger, Walter J., office man	2,642.09		
Herder, Ellsworth E., raker	2,649.70		
Herold, Homer W., lineman	35.36		
Hesedahl, Irwin C., laborer	67.32		
Hess, Alvin E., mechanic	2,889.45		
Hess, Charles V., office assistant	2,586.33		
Hess, Donald J., truck driver	316.29		
Hess, John O., transitman	4,110.00	13.80	
Hetrick, Hollis I., draftsman	4,110.00	84.95	
Heuperman, Lambertus F., engr. designer	5,500.00		
Hewitt, Myron C., sign crew helper	2,635.00	462.55	
Hewitt, Wm. H., pull grader operator	2,635.00	462.55	
Hiatt, Jack C., transitman	4,110.00	132.40	
Hiatt, Wm. A., section foreman	3,148.76		
Hickey, Clayburn W., laborer	186.48		
Hickox, Victor V., watchman	1,392.35		
Hicks, Walter Dean, chainman	1,620.32		
Hildebrandt, Elmer H., mechanic-shovel operator	3,331.41		
Hildebrandt, Fred F., motor grader operator	585.97		
Hill, Elevyn N., tender driver	2,509.89		
Hill, Emery T., laborer	312.53		
Hill, Glenn, section foreman helper	2,877.77		
Hill, Robert N., computer	3,146.67		
Hill, Walter A., load spotter	171.80		
Hilterbrandt, Emery, laborer	60.18		
Hilyard, Geo. L., truck driver	2,487.64		
Hilyard, Wm. S., pull grader operator	2,333.28		
Hines, Evert B., laborer	50.40		
Hinges, Norman P., office assistant	402.50		
Hinkle, James H., flagman	375.92		
Hinkle, J. Twig, section foreman helper	2,854.16		
Hinshaw, Ted R., checker	71.95		
Hinz, E. A., chief clerk	3,870.00		
Hoard, Norman B., computer	7,095.47		
Hobble, Harold J., painter	544.65		
Hobbs, Jim J., laborer	1,481.22		
Hoch, Russell, section foreman	2,934.53		
Hodge, Walter S., resident engineer	6,030.00	83.00	
Hodges, Francis E., laborer	127.26		
Hodges, John P., paving foreman	4,344.08		
Hoevet, Gilbert J., painter	2,633.21		
Hoevet, Paul R., paint machine operator	2,290.47		
Hoevet, Wm. C., sign crew helper	2,466.80	571.15	

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Hogg, Alfred, man and team	$ 64.40	$	$
Hogg, Virgil E., power mower operator	2,270.88		
Holcomb, Clinton G., chainman	185.37		
Holcomb, Clyde A., working foreman	3,105.28	18.40	
Hollamon, Floyd M., section foreman helper	2,623.39		
Holland, Dale L., truck driver	236.16		
Holland, Edward J., section foreman helper	2,858.57		
Holland, Wm. H., section foreman	3,315.00		
Hollenberg, R. V., traffic manager	4,830.00		
Holler, Henry, watchman	274.38		
Hollingsworth, Hilton H., miner	3,005.08		
Hollingsworth, Hiram E., stakeman	1,780.00	10.25	
Holloway, L. Clyde, truck driver	669.38		
Holman, Arthur W., flushcoater	1,976.31		
Holmes, Charles E., head chainman	1,899.47	117.90	
Holmes, Frank D., weighmaster	2,106.28		
Halverson, John R., truck driver	1,373.20		
Hoover, Edward L., chainman	288.39		
Hoppe, Otto E., mechanic's helper	3,397.18	76.45	
Hopper, Roland, section foreman	3,305.33	14.55	
Horgan, Daniel, shoveler-laborer	427.12		
Horton, Otto P., section foreman	3,291.17		
Hossman, Frank J., carpenter	3,214.81		
Houck, James F., lineman	361.86		
Houk, Lester W., laborer	39.78		
Householder, Edward, laborer	344.61		
Householder, George D., section foreman helper	2,774.01		
Householder, Warren H., truck driver	1,409.38		
Houston, Paul W., draftsman	4,305.00		
Howard, Charles A., sign crew foreman	3.390.00	691.15	
Howard, W. Ray, laboratory assistant	4,230.00		
Howell, Richard L., miner	2,943.30		
Howell, Wm. F., truck driver	2,377.30		
Howes, Robert E., truck driver	55.28		
Howry, John E., foreman	3,323.50		
Hoxie, C. Oscar, extra-gang foreman	3,740.00	26.63	
Hoxie, J. Eugene, watchman	1,366.48		
Hubbell, Geo. F., laborer	115.92		
Hubbs, Marion W., laborer-truck driver	2,297.52		
Hublitz, Carl H., transport driver	1,721.96		
Huckins, Art P., laborer	1,483.44		
Huddleston, Lewis A., state police guard	573.57		
Hudron, Joe G., laborer	1,541.20		
Hudson, Alfred O., bridgeman	1,015.62		
Huffman, Frank M., office assistant-timekeeper	3,183.03	10.10	
Huffman, John, truck driver	9.52		
Huffman, T. Wayne, chainman	891.82		
Hughes, Charles H., inspector	3,717.90		
Hughes, Nick N., office assistant	3,128.55		
Hughes, Walter E., laborer	141.62		
Hughlett, Horton W., bridge foreman	3,909.02	23.05	
Hugill, John, Jr., laborer	57.96		
Hugo, Frank E., mechanic	3,438.16		
Hull, Eugene R., laborer	29.02		
Hull, Frederick J., operating watchman	2,790.00		
Hungerford, Herbert L., lineman	40.80		
Hunt, Carolyn M., posting machine operator	430.36		
Hunter, Harry C., watchman	561.60		
Huntley, B. Philip, computer	3,145.00		
Hunzicker, Otto A., truck driver	2,291.58		
Hunziker, Clarence H., serviceman	348.00		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Hurd, Wayne, truck driver	$ 189.80	$	$
Hushbeck, Lewis S., state police guard	250.00		
Huskinson, Chas C., laborer	173.88		
Hussey, Fred J., section foreman	3,315.00		
Hussey, Harold H., truck driver	639.06		
Huston, Clarence R., laborer-truck driver	473.36		
Huston, Elwin M., laborer	476.62		
Hutchinson, Frank G., engr. designer	6,005.00	98.15	103.16
Hutchings, Marvin A., sign shop painter	2,665.70	14.65	
Hutton, Guy N., laborer	221.76		
Hyvari, Oscar H., section foreman helper	2,776.88		
Illum, Fred S., operating watchman	1,346.68		
Ingels, Hollis G., transitman	4,032.58	52.05	
Ingerson, James L., carpenter's assistant	3,083.16		
Ingham, Stephen H., boilerman	2,319.32		
Ingle, Elmer C., laborer	41.24		
Inglish, Charles R., tender driver	2,446.49	2.75	
Inglish, John R., pitman	208.46		
Ingram, Leland O., state police guard	85.83		
Ingrey, Helen, secretary	3,630.00		
Inman, Wm. S., section foreman	3,315.00		
Isaacson, Frank O., flagman	201.50		
Isham, John M., office assistant	3,530.00		
Ismert, Ralph G., laborer	680.49		
Ismert, Robert H., laborer-truck driver	2,823.18		
Iverson, Charles H., traffic line foreman	2,819.35		
Iverson, Donald G., state police guard	818.55		
Jackson, Clifford B., chainman	1,780.00		
Jackson, James C., laborer	166.32		
Jackson, John D., laborer-truck driver	960.20		
Jackson, John S., laborer	2,429.11	8.55	
Jackson, Robert A., truck driver	129.92		
Jacobs, Adrain M., laborer	1,265.49		
Jacobs, Floy, laborer-truck driver	2,275.76		
Jacobs, Weaver G., assistant foreman	2,978.77		
Jacobson, Carl C., truck driver	2,511.41		
Jahns, Robert H., assistant carpenter	1,661.40	146.20	
Jamerson, Wm. T., truck dr.-snogo oper. helper	2,461.88		
James, Robert L., mechanic	3,072.34		
James, Wm. H., section foreman	3,315.00		
James, Worthem E., truck driver	1,238.14		
Janes, Marion A., laborer-truck driver	1,319.59		
Janosky, Frank S., truck driver	94.76		
Janz, Arthur E., timekeeper	1,892.85		
Jaqua, Claren E., engineer assistant	3,300.00	28.55	
Jayes, John J., shop superintendent	4,815.00		
Jayes, Wm S., shop superintendent	4,815.00		
Jeans, John E., laborer	50.40		
Jeli, George J., section foreman helper	2,880.78		
Jennings, Charles L., truck driver	2,266.58		
Jennings, Fred G., section foreman helper	2,719.48		
Jensen, Anton C., caretaker	328.85		
Jensen, Luther L., resident engineer	6,030.00		
Jensen, Otis V., inspector	3,462.00	274.90	
Jiggar, Frank E., checker	338.00		
Johns, Chester B., mechanic	3,635.92	2.10	
Johns, Donald H., truck driver	2,172.46		
Johnson, Albert E., engineering designer	4,960.00		
Johnson, Arthur D., truck driver	700.14		
Johnson, Arthur M., accountant	4,128.15		
Johnson, Benjamin O., resident engineer	6,058.39	18.40	

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Johnson, Bert W., kettleman	$2,432.80	$	$
Johnson, Clayton E., laborer	2,111.68		
Johnson, Clifford E., blacksmith	3,097.67		
Johnson, Clyde E., truck driver	2,550.72		
Johnson, C. Wm., section foreman helper	2,878.87		
Johnson, David W., laborer	181.41		
Johnson, Edgar B., blacksmith working foreman	3,659.28		
Johnson, Edward D., truck driver	2,646.22		
Johnson, Edwin C., timekeeper	2,738.00	13.30	
Johnson, Ernest, section foreman	3,315.00		
Johnson, Fred A., laborer	271.84		
Johnson, George M., section foreman	3,315.00		
Johnson, Glenn Harold, truck driver	1,494.06		
Johnson, Jack D., paint machine operator	1,721.56		
Johnson, Joe L., assistant carpenter	2,121.64		
Johnson, John, gate tender	2,485.00		
Johnson, Kenneth C., laborer	3.74		
Johnson, Lawrence A., truck driver	1,280.16		
Johnson, Lloyd C., transitman	3,959.29	16.35	
Johnson, Merle, laborer-truck driver	75.48		
Johnson, Ray T., transitman	2,804.64	.50	
Johnson, Valdemar P., engineer assistant	3,240.00	195.15	
Johnson, Vinton A., bridgeman	1,226.10		
Johnson, William Edward, field assistant	1,603.57		
Johnston, Dalton G., paintman	406.20		
Johnston, Emory E., dist. maint. supt.	5,830.00	89.68	
Johnston, Lowell A., resident engineer	5,415.00		
Jolly, William, laborer	2,051.20		
Jones, Arthur F., flagman	287.96		
Jones, Clifford R., section foreman helper	2,978.17		
Jones, Donald P., checker	1,555.17	7.35	
Jones, Elmer W., park watchman	1,430.50		
Jones, Everett, motor grader operator	2,701.59	2.50	
Jones, General M., section foreman	3,315.00	5.80	
Jones, John T., Sr., section foreman helper	2,417.79		
Jones, Joseph O., part time caretaker	555.00		
Jones, Norval H., shop superintendent	4,815.00		
Jones, Ollie C., section foreman	3,301.25	24.60	
Jones, Ona J., lineman	147.80		
Jones, S. Paul, transitman	4,155.00		
Jones, Thomas A., watchman	221.77		
Jones, William H., retort operator	354.20		
Jordan, Calvin A., resident engineer	6,030.00	9.00	
Judy, Justin E., laborer	2,245.16		
Juntunen, John S., laborer	2,100.61		
Jurgens, Earl F., truck driver-tender driver	1,948.73		
Just, Theophilus F., laborer	1,025.73		
Justice, Halbert G., laborer	1,779.96		
Juve, Maurice N., transitman	4,110.00		
Kafoury, Leo, bridgeman	1,444.16		
Kalmbach, Jesse N., boilerman	249.60		
Kamph, Frank E., section foreman helper	2,771.71		
Kaneaster, Wayne E., laborer	260.37		
Kasinger, Lyman R., shoveler	1,913.28		
Kayser, George, office assistant	2,913.55		
Kayser, Henry J., mechanic	3,615.36		
Keffalos, Geo. S., paintman	273.69		
Keltz, Virginia May, typist	344.07		
Keman, James B., lineman	129.88		
Kennedy, Edmund L., chainman	1,731.31		
Kennedy, Glenn G., checker	155.16		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Kennedy, John, laborer	$2,284.66	$	$
Kennedy, Norwain W., mechanic	3,463.43		
Kennedy, Roy W., laborer-truck driver	1,375.64		
Kenney, Ezra A., checker	1,802.15		
Kenney, Virgil P., truck driver	717.55		
Kennon, O. Roy, resident bridge engineer	3,760.00	9.25	
Kerber, Leo, extra-gang foreman	4,390.80	8.15	
Kergil, John F., office assistant	1,917.38	6.00	
Kerns, Roy R., flagman	307.40		
Kerns, Roy L., raker	126.14		
Ketcham, Leo A., tabulating machine operator	1,175.00		
Kight, Cecil H., truck driver	2,879.80	3.90	
Kilby, Wellington L., bridgeman	1,682.96		
Kilday, Arthur, watchman	295.83		
Kilger, Leo A., engineering designer	4,646.67		
Killin, Elbert R., bridgeman	1,449.26		
King, Lowell C., tender driver	1,068.93		
King, Melvin R., truck driver	2,026.57		
Kirby, Richard B., flagman	1,660.70		
Kirk, Walter E., truck driver	2,510.60		
Kirkham, Leo E., surface foreman	3,318.23	2.80	
Kirkwood, Albert A., locating engineer	6,030.00	10.65	
Kistner, Kenneth L., extra-gang foreman	3,583.31		
Kivitt, Clayton L., truck driver-P. M. oper.	2,647.16		
Kline, Robert, motor grader operator	2,646.45	2.00	
Klitz, Noel F., mechanic	3.476.16	74.95	
Knopke, Louis A., truck driver	383.24		
Knapp, Charles R., tractor operator	531.76		
Kneass, Arthur B., real prop. office man	6,030.00		
Knife, Elmer E., laborer	258.30		
Knight, James W., laborer	234.74		
Knight, Robert P., truck driver	360.44		
Knox, Cecile, stenographer	2,790.00		
Koch, John J., laborer	428.20		
Koch, Lawrence A., truck driver	2,483.59		
Koehler, Jn. H., chainman	230.00		
Kofoed, Allen P., caretaker	3,018.21	.60	
Kondraski, Dominic, section foreman helper	2,512.92		
Koons, Lindley V., dist. maint. supt.	6,030.00	288.60	
Koopmans, Menno S., landscape foreman	2,739.77	45.45	
Kovach, George M., laborer	2,229.24		
Kozak, Kenneth L., laborer	313.36		
Krantz, Walter R., laborer	362.88		
Kristensen, N., laborer	5.04		
Kron, Ervin V., sign shops painter	2,929.13		
Krueger, Walter G., general bridge foreman	4,803.00	242.70	
Kucera, Bernard P., truck driver	117.44		
Kuhn, Perry, laborer-truck driver	126.90		
Kuenzli, Ralph W., shop office man	2,753.05		
Kuiper, Wm. H., rollerman	2,688.98		
Kurtz, Geo. W., state police guard	826.61		
Laam, Homer V., transport driver	2,927.94		
La Duke, Jane, key punch operator	210.00		
La Frambois, Emmett J., timekeeper	413.33		
Lahr, Frank J., laborer-truck driver	1,319.72		
Laman, Arthur V., laborer	2,160.72		
Lamb, Donald E., truck driver	1,370.36		
Lamb, Earl, laborer	2,307.30		
Landon, Ray, right of way agent	5,825.00	1,555.40	
Lane, Benjamin F., mechanic	3,700.55	212.30	
Lane, Clyde A., laborer-truck driver	2,183.85		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Lane, Donald B., laborer-raker	$1,546.60	$	$
Lane, Don V., apprentice raker	546.92		
Lane, Frank L., laborer	141.12		
Lane, John, laborer	137.00		
Lane, Wandell Silas, laborer-truck driver	2,286.84		
Langille, Wm. A., engineer's assistant	3,630.00	46.90	
Large, Candler, laborer-paintman	190.36		
Lankford, Lester C., head chainman	2,145.58		
Larson, Norton W., laborer	1,027.80		
Larson, Oscar T., laborer	2,338.64		
Lasater, Guy L., section foreman helper	1,637.80		
Lathim, Kenley B., office assistant	3,630.00		
Lattin, Bruce G., state police guard	100.00		
Laughlin, Charles M., laborer-truck driver	2,234.44		
Laughlin, Marshall E., section foreman	3,315.00		
Lawrence, Kirk M., chainman	459.68		
Laws, Wendell P., section foreman	3,315.00		
Lawson, Leo W., state police guard	758.06		
Lawton, Richard R., pull grader operator	2,494.62		
Layman, LeRoy E., paint machine operator	2,437.48		
Layton, Theodore, truck driver	1,678.94		
Leach, Sandy O., laborer	629.22		
Leach, Warren R., section foreman	3,315.00		
Leach, Wm. P., watchman	181.45		
Leathers, Lee R., laborer	89.72		
Leaverton, Clyde D., flagman	250.38		
Le Blanc, Adolph L., traffic line foreman	3,418.25		
Ledgerwood, Leo M., transport driver	2,376.89		
Lee, Harry T., motor grader operator	1,072.44		
Lee, Seth, sign shops painter	2,715.22		
Leek, Elmer, truck driver	349.84		
Leek, Fred G., laborer	1,641.51		
Leek, Marston, laborer-flushcoater	102.46		
Le Gier, Lester B., section foreman helper	2,853.29	4.55	
Le Gore, Harry L., bridgeman	2,743.07		
Lehman, Clifford V., inspector	1,394.52		
Lehman, Hal W., stencil cutter	2,963.68		
Leisher, Lowell H., boilerman	2,511.00		
Leneve, Lans W., checker	1,738.67		
Lenz, Clifford H., section foreman	3,315.00		
Leonard, J. Wesley, section foreman helper	2,880.16		
Le Pere, Fred A., laborer-truck driver	212.24		
Leroy, Leonard S., laborer	934.44		
Levenhagen, John C., truck driver	2,503.23		
Levin, L. Oscar, gate tender	2,496.09		
Levins, Roy M., assistant carpenter	2,880.00	33.20	
Lewis, Cloyd T., section foreman helper	3,101.10		
Lewman, Floyd S., laborer	205.32		
Lewman, Marion F., laborer	200.40		
Lichtenberger, Joseph E., laborer	167.73		
Lichty, Jack D., laborer	78.44		
Lintner, Barbara H., comp. machine oper.	100.00		
Lipscomb, Alvie, state police guard	312.50		
Lisenby, Wm. P., laborer	2,185.10		
Lithgrow, Wayne W., section foreman	3,315.00		
Little, Frank J., laborer	257.04		
Little, Ralph H., shoveler	179.53		
Litzenberger, Walter R., mechanic	3,590.88		
Lockyear, William L., assistant bridge foreman	3,630.00		
Loertscher, Glen, office assistant	1,253.21		
Logan, Alvis L., timekeeper	296.34		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Lomax, Eugene W., truck driver	$ 583.45	$	$ .....
Lommasson, Allen J., head chainman	2,850.16	12.85	2.60
Long, Cullom C., foreman	3,662.62	.....	.....
Long, Willard W., section foreman	3,132.27	.....	.....
Longley, Lemuel L., truck driver	1,030.19	.....	.....
Loop, Charles E., laborer-painter	1,195.61	.....	.....
Loter, Kenneth F., timekeeper	2,919.42	.....	.....
Love, E. Eugene, chainman	273.00	13.80	.....
Love, Leatis L., laborer	359.10	.....	.....
Love, Lewis P., laborer	32.76	.....	.....
Lovell, James A., laborer	2,319.41	3.25	.....
Low, Charles E., engineering supervisor	5,920.00	21.65	.....
Lowery, Gayle V., truck driver	833.12	.....	.....
Lowery, Joe F., laborer	109.04	.....	.....
Lowery, Lew H., operating watchman	1,872.13	.....	.....
Lowery, Vester T., inspector	3,710.00	22.95	.....
Lucas, Caroline, clerk	2,670.00	.....	.....
Lucas, Forrest F., laborer-truck driver	1,957.20	.....	.....
Lucas, Oscar C., truck driver	948.26	.....	.....
Lucas, Prince A., inspector	3,215.48	23.95	.....
Lucero, Frank L., laborer	70.72	.....	.....
Luckett, Harry W., trav. motor grader	2,951.56	.....	.....
Lund, Martin, laborer	2,317.50	.....	.....
Lundy, Alvin S., raker	709.18	.....	.....
Lute, John A., laborer	199.08	.....	.....
Lutes, Robert G., shoveler	313.44	.....	.....
Luttrell, Vernon, laborer	173.88	.....	.....
Lutz, Louis O., section foreman	3,315.00	.....	.....
Lutze, Lawrence, truck driver	53.28	.....	.....
Lyda, Herman C., carpenter	3,166.29	.....	.....
Lyman, Loyd G., Jr., laborer	63.54	.....	.....
Lynam, Everett L., truck driver	1,256.92	.....	.....
Lynes, Ray C., state police guard	295.83	.....	.....
Lyons, Lester A., assistant carpenter	2,693.10	.....	.....
Lyons, Ralph V., section foreman helper	2,833.02	.....	.....
Lytle, Kingsley D., division engineer	9,600.00	850.40	.....
Lytle, Ted Wallace, truck driver	2,442.98	.....	.....
MacGregor, John H., engineering supervisor	4,850.00	39.15	.....
Mackey, Marvin L., service man	1,665.88	97.15	.....
Mackey, Robert L., painter	85.84	.....	.....
Macomber, Clarence A., section foreman	3,104.25	.....	.....
Macomber, Nathaniel A., section foreman helper	2,718.58	.....	.....
Macy, Clyde C., laborer	910.69	.....	.....
Macy, John A., laborer	162.51	.....	.....
Madden, Frank J., painter	65.12	.....	.....
Madin, Arthur J., service man	947.42	.....	.....
Madison, Ben H., flagman	26.40	.....	.....
Maggard, Wm. H., miner's helper	438.12	.....	.....
Mahan, Claude, transitman	4,110.00	.....	.....
Mahany, Orra L., clerk	2,420.00	.....	.....
Main, Luke S., section foreman	3,315.00	.....	.....
Maison, Clifford H., ledger supervisor	3,733.87	.....	.....
Maki, Hannes J., laborer-truck driver	280.90	.....	.....
Malarkey, Leo J., laborer	201.60	.....	.....
Mall, Laddie M., paintman	327.14	.....	.....
Malo, Robert, laborer	16.32	.....	.....
Mangis, Maurice W., plant foreman	2,324.09	.....	.....
Mann, Bill M., office assistant	2,787.50	.90	.....
Mann, Hubert, inspector	3,730.00	.....	.....
Mann, Warren B., tr. dr-power mower operator	1,977.83	.....	.....
Manning, Charles W., bridge foreman	4,100.00	.....	.....

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Manning, Delbert D., shoveler	$ 324.79	$	$
Manning, Robert J., laborer	93.24		
Mannisto, Jorma G., bridgeman	2,328.54		
Marble, Allen S., pitman	214.88		
Marchant, Wm. H., laborer-truck driver	507.55		
Marchbank, Frank B., bridge operator	3,390.00		
Marcum, Benjamin Harry, painter	1,381.94		
Marketta, Frank M., truck driver	2,098.71		
Marks, Archie B., laborer	347.76		
Marlman, George, part time caretaker	375.00		
Marovich, Milan, truck driver	1,670.28		
Mars, Lewis Donald, resident engineer	6,005.00		
Marsden, Peter, laborer	292.32		
Marshall, Claud O., laborer-truck driver	669.25		
Martin, Benjamin A., locating engineer	6,060.00	109.20	
Martin, Frank V., lineman	284.80		
Martin, Fred D., shoveler	2,373.45		
Martin, Harold Raymond, painter	313.92		
Martin, Herman, section foreman helper	2,773.56		
Martin, James C., laborer-raker	1,710.40		
Martin, John E., section foreman helper	2,871.71		
Martin, Leo C., kettleman	1,160.64		
Martin, Lester D., plant foreman	1,093.39		
Martin, Onie L., shop watchman	1,247.76		
Martin, Walter D., laborer	127.40		
Martin, Wm. O., raker	2,388.02		
Mascall, Cedric C., section foreman helper	2,870.41		
Mason, Harry G., bridgeman	1,461.50	17.70	
Mastin, Robert L., truck driver	495.36	5.35	
Mathis, Karl F., timekeeper	330.67		
Matney, Virgil B., laborer-truck driver	1,150.60		
Matney, W. Manley, laborer	55.44		
Mattingly, Alphonsus L., laborer	2,216.22		
Mauch, Alva G., engineering assistant	3,013.87		
Mauch, Roy E., laborer	95.13		
Mauer, Mike J., truck driver	1,943.74		
Mauney, Derril A., laborer	130.73		
Maupin, Garrett A., laborer	1,953.06		
Maxwell, Charles W., truck driver	955.82		
Maxwell, Milburn N., truck driver	2,647.87		
May, Sim A., state police guard	607.14		
Mayer, Clarence N., section foreman helper	2,856.76		
Mayfield, Harley, checker	1,996.00		
Mayhew, Garland, tender driver	572.53	.45	
Maynard, Claud O., line foreman	3,730.00		
McAllister, John M., truck driver	736.43		
McArthur, John D., motor grader operator	2,498.61		
McAtee, Clinton E., laborer	377.01		
McAtee, Harvey G., truck driver	1,342.96		
McBride, David T., special mechanic	4,830.00	2,157.48	
McBride, John L., laborer	1,828.83		
McCafferty, Ward L., office assistant	2,666.33	7.35	
McCallister, John W., engineering supervisor	5,320.00		
McCallister, Mark D., right of way agent	6,225.00	846.80	
McCallister, Merle, truck driver	1,735.58		
McCann, J. Lester, section foreman helper	2,847.01		
McCart, Jerold D., laborer	25.16		
McCarthy, Justin B., laborer-truck driver	131.06		
McCarty, Elbert, laborer-truck driver	2,458.95		
McCauley, Wm. E., truck driver	297.31		
McChesney, Wm. S., right of way agent	5,005.00	427.15	

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
McClain, Harvey E., section foreman	$3,315.00	$	$
McClary, Charlotte, secretary	3,260.00		
McClay, Taylor L., section foreman	2,737.10		
McClay, Wm. T., laborer-truck driver	1,456.28		
McClure, Edward, part time caretaker	355.00		
McClure, Edward J., laborer	1,440.52		
McClure, Harry H., foreman	3,393.33		
McClure, James A., apprentice painter	2,199.33		
McCollum, John W., section foreman	3,315.00		
McComb, Oliver G., computer	3,450.00	29.05	
McComber, Glen C., truck driver	1.48		
McConnahay, Wm. O., laborer	334.22		
McCormick, Jack C., stakeman-checker	102.67		
McCoy, James L., laborer	287.28		
McCoy, Ralph R., truck driver	360.60		
McCracken, Elliott B., inspector	75.00		
McCullough, C. B., assistant state highway engineer	12,000.00	469.60	
McCumsey, Harvey L., laborer-mot. grad. oper.	2,413.11		
McCune, Henry L., laborer	309.30		
McCurdy, Max, laborer	5.04		
McCutcheon, Charles E., operating watchman	3,178.71	2.70	
McDerby, Willis T., laborer-truck driver	1,288.93		
McDonald, Rollin H., service man	2,520.00		
McDonough, Harry L., truck driver	73.60		
McElfresh, Frank E., laborer	2,335.69		
McEwen, Joseph Earl, axeman	33.00		
McFarland, James, engineering supervisor	6,005.00	53.60	
McGahan, Albert, shop watchman	640.32	41.45	
McGahan, Virgil, mechanic	3,654.44		
McGee, John F., transitman	4,140.00	2.85	
McGill, Norman L., office assistant	284.00		
McGinnis, Webb, section foreman	3,315.00		
McGreer, Ellis G., section foreman	3,232.33		
McGrew, Henry M., laborer-painter	361.48		
McGuire, Joseph Harry, laborer	650.54		
McGuire, Warren G., paint machine operator	2,075.07		
McIlroy, Robert P., laborer	329.48		
McIntosh, Clinton E., truck driver	1,616.90		
McIntyre, Ray P., laborer	27.72		
McIrvin, Alexander O., inspector	3,668.31	39.10	5.19
McKay, Philip, motor grader operator	2,741.25		
McKeay, John, state police guard	149.19		
McKean, Charles H., weighmaster	3,270.00	1,106.70	
McKeen, Sam A., laborer	100.64		
McKeller, Donald L., truck driver	23.68		
McKenzie, Chester A., section foreman helper	2,907.19		
McKenzie, Richard L., section foreman helper	2,747.40		
McKillop, Maxine P., stenographer	2,108.53		
McKillop, Wm., flagman	1,135.73		
McKinney, Curtis C., draftsman	3,350.00		
McKinney, James H., truck driver	2,495.22		
McKinney, Robert R., truck driver	1,517.26		
McKinnis, Harold C., laborer	42.84		
McKinnon, Otis, section foreman	3,315.00		
McKlin, John F., laborer	32.76		
McLain, James E., painter	111.61		
McLeod, Walter W., section foreman	3,312.84		
McMahan, Carl H., special investigator	2,125.00	132.30	92.20
McManus, Albert, bridge operator	3,390.00		
McMurren, Joseph S., trk. dr.-bulldozer oper.	3,454.07		
McPherson, James I., mechanic	3,071.83		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
McRae, Everett, laborer-truck driver	$1,341.56	$	$
McReynolds, Gladys, key punch operator	2,130.00		
McReynolds, Lewis J., office assistant	3,630.00	2.95	
McReynolds, Ralph A., mechanic	3,421.30	39.95	
Mead, Charles W., laborer	206.72		
Meads, Lyle A., truck driver	340.96		
Meeks, John M., section foreman	3,315.00	13.80	
Meengs, Ray, laborer	2,281.77		
Meggitt, Harry Ernest, carpenter	3,014.99		
Melchert, Harold V., checker	1,861.36		
Melton, Harry C., oil foreman	4,286.91	18.00	
Melton, Luther R., section foreman helper	2,923.71	30.30	
Melton, Lyle L., truck driver	255.68		
Melville, John O., laborer	2,273.09		
Menegat, Peter J., levelman	3,263.08	85.15	
Mercer, F. E., mailing clerk	4,207.42		
Merchant, Ivan D., engineering designer	5,675.00	11.45	
Mershon, Louis J., bridge foreman	4,099.99	4.25	
Mervill, Walter B., transitman	3,120.00	10.45	
Messenger, Elmer T., section foreman	3,315.00		
Messenger, Truman E., section foreman helper	2,843.66		
Messinger, Solomon K., laborer	2,350.25		
Meyer, Fred W., truck driver	2,456.48	33.50	
Meyers, Fred E., section foreman	3,315.00		
Michael, Harry E., laborer	201.60		
Miles, Frank V., flushcoater	419.69		
Miles, Myron W., truck driver	481.64		
Millard, Arthur R., checker	117.00		
Millard, S. Guy, section foreman	3,169.42		
Miller, Albert L., boilerman	240.80		
Miller, Carl L., tender driver	2,804.56	1.30	
Miller, Carl T., boilerman	295.34		
Miller, Claude S., mechanic's helper	2,914.73		
Miller, Dick H., truck driver	204.88		
Miller, Earl H., welder	3,381.39	41.50	
Miller, Earnest F., lineman	21.76		
Miller, Edward C., state police guard	806.45	5.80	
Miller, Ellis D., section foreman helper	2,835.41		
Miller, Elmer A., laborer	100.80		
Miller, George V., inspector	3,729.19	124.00	
Miller, Henry J., dist. maint. supt.	6,030.00	118.80	
Miller, Homer R., section foreman	3,315.00		
Miller, Jack G., section foreman helper	2,872.45		
Miller, James B., laborer	21.04		
Miller, John Robert, bridgeman	2,193.20		
Miller, Joseph, mechanic	3,717.74	72.80	
Miller, Marvin E., truck driver	2,779.46		
Miller, Philip E., computer	2,773.95	12.65	
Miller, Ralph T., truck driver	2,170.75		
Miller, Wm. H., section foreman	3,315.00		
Millett, Frank, janitor	1,543.87		
Million, Charles L., section foreman helper	2,879.51		
Mills, Jack A., laborer	71.44		
Mills, Wm. E., laborer	388.19		
Miltenberger, Glen H., laborer	121.00		
Miltenberger, Howard C., section foreman helper	2,724.62	4.20	
Miner, Asberry, section foreman	3,330.00		
Mingle, F. Herbert, draftsman	1,590.48		
Mikiewitz, Wm. J., real property office man	4,110.00		
Minor, Johnie W., laborer	10.20		
Minthorn, Walter, bridge foreman	4,100.00		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Miranda, Harold J., welder	$3,409.66	$	$
Misander, Albert, pitman	9.52		
Misfeldt, James E., lineman	129.88		
Mitchell, Darrel H., laborer	120.96		
Mitchell, Jack W., checker	150.97		
Mitchell, Kenneth H., laborer	22.68		
Mitchell, Melville L., shoveler	478.88		
Mitchell, N. E., truck driver	783.80		
Moffitt, Richard L., laborer	22.68		
Moffitt, Victor L., paving foreman	4,429.04		
Mohatt, Geo. V., chainman	970.84		
Mohney, Russell A., chainman-checker	2,557.31	1.00	
Moir, Thomas E., painter	12.58		
Monner, Hubert A., truck driver	2,067.04		
Monroe, Joseph R., section foreman	3,315.00		
Mohoney, Jack, laborer	181.16		
Monroe, Thomas P., truck dr.-pull grad. oper.	2,081.09	9.70	
Monson, Agnes, stenographer	2,500.00		
Monson, Ann L., secretary	3,136.13	38.50	
Moon, Oris O., truck driver	2,628.32		
Moore, Carl E., raker	628.04		
Moore, Carl O., laborer	308.70		
Moore, Ernest S., bridge foreman	4,100.00	7.70	
Moore, Harry, laborer-faller	2,151.67		
Moore, Homer R., section foreman helper	2,805.36		
Moore, J. Claude, section foreman	3,159.98	19.85	
Moore, James P., bridgeman	1,395.04		
Moore, Merville W., inspector	4,243.33	57.97	
Moore, Roy G., miner	3,085.26		
Moore, Royce E., laborer	10.88		
Moore, Ted S., laborer-shoveler	36.32		
Mooris, Roger L., laborer	61.80		
Moran, Frank E., truck driver	1,031.28		
Morelock, James Edward, locating engineer	5,755.00	93.00	
Morgali, Gladys M., stenographer	2,620.00		
Morgan, Albert L., part time caretaker	82.10		
Morgan, Ernest A., pitman	86.68		
Morgan, Frank D., engineering supervisor	4,620.00		
Morgan, Hilary H., truck driver	2,579.65		
Morgan, Louis L., laborer	252.00		
Morris, Arthur R., shoveler	105.60		
Morris, Diamond A., section foreman helper	2,717.19		
Morris, Donald I., flagman	48.22		
Morris, Fred, shoveler	5.70		
Morris, Geo. C., truck driver	104.34		
Morris, H. Glen, section foreman	3,062.80		
Morris, Jere, section foreman helper	2,882.11		
Morris, Joseph F., laborer	317.52		
Morrison, Clifton C., laborer	27.72		
Morriss, Collin C., operator	1,505.31		
Morse, Fredrick W., pruner	2,968.57		
Morse, Perry O., state police guard	275.00		
Mortimer, Walter N., laborer-truck driver	163.58		
Morton, Albert, miner's helper	242.08		
Moser, August, mechanic	3,425.86		
Moser, August L., state police guard	827.74		
Mote, Mearl H., painter	1,657.56	33.20	
Mott, Guy H., foreman	1,940.00		
Mott, Robin A., laborer-kettleman	251.52		
Mountain, Robert T., engineer's assistant	4,005.00	192.50	111.84
Mudd, C. Russell, office assistant	3,460.00		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Mudd, Wm. C., weighmaster	$ 333 81	$	$ .....
Mulkey, Chester R., signal foreman	2,675.00	853.70	.....
Mulligan, Frank A., weighmaster	2,816.09	.....	.....
Mulvahill, James M., timekeeper	260.87	.....	.....
Munjar, Herman, truck driver	2,758.37	.....	.....
Munn, Ralph O., section foreman	3,077.44	2.35	.....
Murden, Wm. L., laborer	105.84	.....	.....
Murdock, Jack A., laborer	93.24	.....	.....
Murhammer, Raymond W., raker	1,435.53	.....	.....
Murphy, Karl T., state police guard	267.67	.....	.....
Murrah, Clifford, laborer	396.37	.....	.....
Mutchler, Alfred J., truck driver	447.55	.....	.....
Myers, Edward A., state police guard	826.61	.....	.....
Myers, James E., engineering assistant	4,305.00	97.60	.....
Myers, Kenneth G., laborer-painter	293.32	.....	.....
Myrick, Glen D., truck driver	99.00	.....	.....
Nash, Earl M., oiling foreman	4,136.19	25.35	.....
Nash, John W., assistant staff engineer	5,920.00	96.85	.....
Nash, Jud D., spotting foreman	1,387.42	.....	.....
Neavoll, Blonson D., section foreman helper	2,835.31	.....	.....
Nedrow, Jesse W., truck driver	2,363.30	.....	.....
Nedrow, Lincoln H., caretaker	491.33	.....	.....
Neel, Roy J., truck driver	217.30	.....	.....
Neely, Bert, man and team	92.00	.....	.....
Neilson, Anton, laborer	415.04	.....	.....
Neilson, John, laborer-truck driver	2,364.76	.....	.....
Nelson, Charlie A., section foreman helper	2,911.69	.....	.....
Nelson, Ernest, watchman	478.87	.....	.....
Nelson, James D., engineer's assistant	1,938.55	221.95	.....
Nelson, Leon H., draftsman	4,120.00	11.40	.....
Nelson, Roger F., plant foreman	2,858.55	.....	.....
Nelson, Roy W., raker	579.70	.....	.....
Nelson, Wilmer E., mechanic	3,207.19	30.15	.....
Nestell, Sam C., bridgeman	1,298.04	.....	.....
New, Isaac H., state police guard	272.64	.....	.....
Newman, Fred W., lineman-paint machine oper.	231.64	.....	.....
Nicholas, Ernest M., section foreman	3,119.96	.....	.....
Nichols, Grant L., truck driver	490.79	2.85	.....
Nichols, Otis A., section foreman helper	2,914.61	.....	.....
Nichols, Ray J., mechanic	3,317.62	3.00	.....
Nielsen, Lawrence J., truck driver	1,111.44	.....	.....
Nielson, Fred A., laborer	2,340.98	.....	.....
Niemeyer, Robert H., shop watchman and janitor	977.42	.....	.....
Nienke, Paul E., laborer-truck driver	392.80	.....	.....
Nieswander, Frank E., price clerk	2,845.00	.....	.....
Niles, Franklyn W., inspector	2,730.00	42.20	.....
Noeske, Carl A., transitman	3,511.85	.....	.....
Noonchester, Myrtle A., stenographer	2,500.00	.....	.....
Norberg, Oscar H., draftsman	4,090.00	.....	.....
Norby, Alvin W., machinist	3,578.54	.....	.....
Nordyke, Q. Homer, laboratory assistant	3,650.00	.....	.....
Norton, Wm. A., laborer	911.30	.....	.....
Nunn, Wayne W., laborer-truck driver	145.69	.....	.....
Nyberg, Karl H., office assistant	3,610.32	.....	.....
Nye, Martin E., mechanic	1,981.56	.....	.....
Oakes, John R., draftsman	2,750.00	.....	.....
Oberman, Richard H., truck driver-paintman	186.11	.....	.....
O'Brien, Orel J., laborer	309.96	.....	.....
O'Callaghan, John P., laborer-truck driver	1,342.21	.....	.....
Oden, Leslie R., laborer-miner	2,357.68	.....	.....
Offill, Glen M., laborer-truck driver	2,568.32	2.75	.....

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Oldenburg, Arthur E., machinist foreman	$3,976.48	$	$
Oldenburg, Henry, blacksmith's helper	2,874.01		
Olds, John H., laborer	1,008.90		
Ollila, Eino J., lineman	10.88		
Olliver, Lyman A., stakeman	82.34		
Olmstead, D. D., fireman	2,215.28		
Olsen, Helmer, section foreman	3,315.00		
Olsen, John P., motor grad. oper.-powder man	770.24		
Olsen, Peder J., flagman	2,436.98		
Olsen, Raymond R., section foreman	2,315.00		
Olson, Albert C., checker	203.67		
Olson, George E., laborer	677.86		
Olson, Louie, surface foreman	3,096.32	.50	
Olson, Manfred W., inspector	2,052.48		
O'Neil, Charles F., computer	3,630.00		
O'Neil, Virgil G., engineering supervisor	5,543.87		
O'Neill, William L., truck driver	2,787.95		
Onstott, Sterling F., motor grader operator	2,710.57		
Opedal, Tom, transitman	4,140.00		
Ordway, Leo E., oil driver	1,686.62		
Orr, John Ray, state police guard	741.93		
Orvis, George T., section foreman	3,315.00		
Osburn, Luther K., stenographer	20.00		
Osterman, Pearl, typist	2,190.00		
Ott, Roxie C., laborer-truck driver	2,294.01		
Otterstrom, Albert, truck driver	2,437.87		
Otto, Samuel, laborer	53.31		
Overdick, Alfred W., truck driver	2,343.80		
Owen, Ben H., rollerman	1,802.26		
Owen, Henry H., laborer	2,182.15		
Owen, Roland R., truck driver	321.41		
Owens, Ermal R., storekeeper	4,830.00		
Oxford, Claborn, boilerman	1,617.51		
Page, Oliver F., pitman-laborer	1,724.56		
Page, Rollin D., laborer	20.32		
Page, Wilmer H., truck driver	109.52		
Paiement, Ed., truck driver	41.80		
Palleske, Milton E., draftsman	2,807.42		
Palmateer, Robert, shoveler	11.84		
Palmer, Delbert B., section foreman helper	1,090.76		
Palmer, Robert A., truck driver	823.09		
Palmer, Robert Y., checker-chainman	1,080.00		
Panting, Harry C., laborer	64.60		
Pappel, Edward J., laborer-truck driver	344.04		
Parberry, Jay J., laborer-power mower operator	2,259.91		
Parker, C. Alfred, blade grader operator	2,241.48		
Parker, Carl G., bridgeman	466.64		
Parker, Clarence W., land appraiser	6,600.00	1,026.64	
Parker, Irvine E., painter	174.64		
Parker, James F., laborer	98.88		
Parker, James J., painter	180.56		
Parker, Virgil L., apprentice painter	1,251.12		
Parkes, Arthur D., laborer	27.09		
Parkes, Douglas B., office assistant	2,802.50		
Parks, Harry W., section foreman	3,315.00		
Parmele, Orville C., laborer	243.16		
Parrein, Oscar H., watchman	286.51		
Parrish, Fred H., mechanic	1,459.85		
Parrish, Loren L., truck driver	295.68		
Parrish, Ralph E., laborer-truck driver	462.68		
Parson, Arvid F., resident bridge engineer	5,530.00		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Parsons, Leland E., assistant staff engineer	$6,325.00	$	$
Partin, Wm. P., hood spotter	254.36		
Parton, Arthur B., laborer	2,341.87		
Patterson, James B., section foreman	3,312.59		
Patton, Paul L., kettleman	1,195.79		
Paulsen, Chester E., engineering assistant	3,755.00	436.00	2.20
Paxson, G. S., staff engineer	10,800.00	510.98	
Payne, Charles S., carpenter's assistant	2,639.52	6.20	
Payne, Guy E., truck driver	50.84		
Payne, Irene V., secretary	3,270.00		
Payne, Max D., truck driver	1,159.42	65.80	
Pearce, Roy E., stockman	2,845.00		
Pearce, Wm. F., sign crew helper	2,419.49	276.95	
Pearson, Alfred L., truck driver	1,741.59		
Peck, Harrison, laborer	254.96		
Pease, Karl, assistant supervisor of permits	587.50		
Peck, Jay E., resident engineer	6,030.00	222.70	
Pease, Edwin A., engineering supervisor	4,554.00	3.45	
Peebles, Frank M., laborer	2,089.08		
Peek, Norman H., sign crew foreman	3,262.50	492.75	
Pence, Charles A., watchman	225.80		
Pence, John T., plant foreman	2,946.87	2.80	
Pennell, Harry C., truck driver	2,472.53		
Pennington, Glen C., truck driver	193.40		
Penton, Robert R., checker	68.29		
Perdue, Ophor, laborer-paintman	325.64		
Perkins, Elmer H., flagman	1,334.29		
Perkins, Geo. N., truck driver	2,521.40		
Perkins, George A., flagman	139.84		
Perkins, Vaughn E., bridge foreman	4,100.00		
Perkins, William G., bridge foreman	4,100.00	29.85	
Pernoll, Vernon M., grader operator	918.22		
Perry, George N., laborer	619.36		
Perry, Raymond W., head chainman	2,965.00	36.55	
Perry, Theodore E., bridgeman	832.99	2.25	
Peschl, John, laborer	61.41		
Peterman, Alvin L., raker	293.19		
Peterman, Lester R., flushcoater	404.19		
Petermon, Albert D., laborer	111.12		
Peters, Claude S., carpenter	3,114.28		
Peters, James A., laborer	81.92		
Peterson, Carl A., resident engineer	6,030.00		
Peterson, Fred L., office assistant	3,530.83	28.50	
Peterson, Nels Herman, bridgeman	2,092.46		
Peterson, Roy M., state police guard	826.61		
Peterson, Wilbur J., truck driver	187.14		
Peugh, Orie J., painter	2,959.80		
Pfifer, Claude E., engineering designer	5,065.00		
Phelps, John A., locating engineer	5,886.43	482.80	
Phillips, Tracy T., laborer	2,187.96		
Pierson, Clarence, laborer-painter	734.45		
Pike, George K., laborer-truck driver	313.08		
Pilcher, John R., head chainman	2,872.50	8.55	
Piper, Theodore R., carpenter	3,228.30		
Pittman, Fred L., section foreman	3,315.00		
Plaistead, Emery M., watchman	325.00		
Plaza, Daniel G., truck driver	388.68		
Plummer, Charles L., pumpman, janitor, caretaker	944.87		
Pollock, Harry R., shoveler-apprentice raker	66.08		
Polvi, George W., mechanic helper	2,637.33		
Pomeroy, Clair Alvin Jr., chainman	325.00		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Pool, Jack A., laborer	$ 56.39	$	$
Poole, Walter V., section foreman helper	2,778.56	14.25	
Pope, James A., laborer	277.83		
Pope, Ralph Ivan, state police guard	2,563.87	2.60	
Porter, Leroy C., painter	437.67		
Porter, Roderick L., resident engineer	4,702.00		
Potter, Chas. E., lineman	19.04		
Potter, Claude L., carpenter	2,779.38		
Poulton, Clyde E., boilerman	356.80		
Powell, Cloan N., laborer	34.64		
Powell, Everett B., truck driver	1,090.62		
Powers, Edwin E., laborer	57.40		
Pratt, James D., office assistant	2,074.08		
Pratt, Lowell V., shoveler	87.10		
Pratt, Willis V., truck driver	172.04		
Price, Carl M., section foreman helper	2,712.72		
Price, James R., state police guard	169.35		
Primbs, Edward R., weighmaster	7.25		
Probasco, Claude A., laborer	1,138.50	.50	
Probert, S. H., staff engineer	10,800.00	31.00	
Prock, Vernon E., truck driver	2,727.28		
Pront, Roy, section foreman helper	2,939.62		
Prose, Oscar A., laborer	284.76		
Pruett, Richard N., laborer	861.59		
Pugh, Harold L., truck driver	1,139.79		
Puter, Cay S., section foreman helper	2,637.02		
Putnam, Joseph H., section foreman	3,315.00		
Putnam, Martin A., accountant	730.00		
Putnam, Wm. G., stakeman	422.87	45.70	
Pyshney, Charles, assistant carpenter	2,842.60		
Query, Floyd A., clerk	3,715.00		
Quesnel, Jack O., laborer	260.68		
Quesnel, Leo L., truck driver	254.04		
Quick, Harold R., laborer	361.60		
Quinn, Wm. B., laborer	347.76		
Quistad, Kathryn, key punch operator	1,001.61		
Rabens, Elmer R., sign crew foreman	3,390.00	809.85	
Radmore, John C., checker	95.33		
Ralph, Charles J., pitman-laborer	1,557.34		
Ralston, Harry E., checker	127.74		
Ramsden, Eugene, laborer	88.20		
Ramsey, Leonard L., truck driver	2,546.23		
Randall, Raymond B., sign crew helper	2,117.75	414.50	
Rands, Royal H., caretaker	2,524.55		
Ransom, Edwin, man and team	171.92		
Rasche, Grayce M., stenographer	2,790.00		
Rasor, James M., axeman	2,514.56		
Rawlings, Ruth, typist	311.29		
Raworth, Arthur C., laborer	157.28		
Raymond, Norman G., chainman	329.33		
Read, Gustavius C., section foreman	3,266.01		
Redman, George L., watchman	1,234.55		
Reed, Leo V., computer	3,630.00		
Reed, Ruth I., clerk	2,055.00		
Reed, Wm. F., rollerman	320.50		
Reeder, Harry B., draftsman	3,806.77		
Reese, Wayne, truck driver	165.76		
Reeves, Myrtle L., stenographer	2,670.00		
Reeves, W. A., assistant staff engineer	7,200.00	131.25	
Reeves, Walter B., laborer	30.20		
Regnell, Walter B., head chainman	2,807.00	66.65	

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Reichwein, Clyde E., truck driver	$2,146.90	$	$
Reick, Wilhelm, truck driver	1,297.36		
Reid, John F., checker	1,073.87		
Reid, Len W., laborer	31.24		
Reigel, Adin R., laborer-truck driver	1,629.77		
Reindl, Emmet W., painter	296.08		
Remington, Charlie J., truck driver	2,477.25		
Remington, Clee B., laborer-truck driver	665.88		
Remington, Frank L., laborer	112.20		
Rennings, Peter J., draftsman	3,765.60		
Rerick, Arthur R., raker	2,676.37		
Reynolds, Geo. W., laborer	1,440.31		
Rhodes, Charles W., laborer	2,296.06		
Rhodes, Frank A., truck driver	186.74		
Rhodes, John W., engineer's assistant	3,600.00	15.20	
Rhule, Chas. E., laborer	714.45		
Rice, Robert C., truck driver	246.00		
Richards, Carl P., engineer's assistant	4,230.00	354.90	
Richards, La Rue, inspector	673.00	1.60	
Richards, Russell N., laborer	216.80		
Richardson, Arthur Truman, mechanic's helper	2,935.65		
Richardson, Charles G., laborer-shoveler	83.31		
Richardson, Elbert E., foreman	2,816.10		
Richardson, Floyd, truck driver	2,806.26		
Richardson, Virgil M., trk. dr.-shoveler	364.39		
Richardson, Waldsee H., motor grader operator	194.20		
Rickard, Earl, laborer	2,270.79		
Ricketts, Ellsworth G., engineering supervisor	6,590.00	499.20	
Rickey, Esther M., secretary	3,270.00		
Ridgeway, Charles R., trk. dr.-rollerman	743.68		
Riebe, Fredrick A., laborer-truck driver	123.96		
Rief, Edward J., inspector	3,680.00		
Riensche, Paul T., state police guard	540.00		
Riley, Walter W., laborer	151.34		
Ringstmeyer, Carl R., laborer-truck driver	882.38	97.37	
Ripley, Gerald R., bulldozer operator	2,770.75		
Rippie, Oscar C., section foreman helper	2,904.21		
Risen, Edward, inspector	3,630.00	33.45	
Ritchie, Florence, clerk	2,645.97		
Roake, Theo. C., engineering designer	5,205.00	1.90	
Robbins, Ray M., truck driver	194.60		
Robbins, Reuben L., laborer-raker	467.93		
Roberts, Archie V., blacksmith's helper	2,882.51		
Roberts, Geo. W., mechanic	3,422.06	23.60	
Roberts, Glenn E., resident engineer	6,030.00	21.90	
Roberts, Hugh W., flagman	305.70		
Roberts, John M., laborer	2,292.76		
Roberts, Kenneth C., transitman	4,110.00	36.30	
Roberts, Ray S., helper	2,590.51		
Roberts, Sherman T., laborer	3.14		
Roberts, Wm. G., burnerman	730.16		
Robertson, James, section foreman	2,841.59		
Robertson, Lewis E., section foreman	3,315.00		
Robertson, Louis A., laborer	289.80		
Robertson, Paul W., section foreman	3,315.00		
Robertson, Ralph E., foreman	3,099.36		
Robertson, Ralph I., truck driver	2,632.23		
Robertson, Thomas J., laborer	378.26		
Robinson, Carroll M., head chainman	1,792.67	1.75	
Robinson, Pleasant S., park watchman	830.83		
Rockafellow, Arthur W., section foreman helper	3,087.88		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Rockwell, Charles L., laborer	$ 678.02	$	$
Rodgers, Dan C., blacksmith	3,333.68		
Roe, Clarence L., carpenter	2,770.92		
Roe, Henry E., rollerman	238.10		
Rogers, Geo. Garland J., laborer-truck driver	2,650.84		
Rogers, Romaine B., man and team	863.98		
Rohmer, Joseph E., laborer-truck driver	2,381.44		
Rohrbough, Darel D., transitman	4,214.84	66.05	
Rokke, Richard, laborer	28.56		
Roland, Geo. W., section foreman	3,315.00		
Roland, J. Harold, truck driver	2,628.64		
Rolls, Chas. W., laborer	192.28		
Romane, Charles H., leverman and truck driver	383.40		
Romane, Everett W., laborer	437.96		
Rooks, Ronald, laborer	100.28		
Roper, Earl J., section foreman	3,134.25		
Roscoe, Albert, watchman	2,568.64		
Rose, Anna V., secretary	3,260.00		
Rosecrans, Richard J., engineer special	4,615.00		
Ross, Charles S., assistant carpenter	498.86		
Ross, Claude B., raker	2,659.35		
Ross, Edward B., laborer	160.80		
Ross, Orval L., laborer	133.56		
Ross, Raymond D., truck driver	1,803.40		
Ross, Robert W., head chainman	2,326.61	34.00	
Roth, Ben, laborer-load spotter	455.02		
Rother, George M., mechanic	3,729.32	3.00	
Rounds, Tunis D., transport driver	2,804.78		
Rountree, Frank B., laborer	2,556.42		
Rousau, Joe N., carpenter	2,854.00		
Roy, Ernest, truck driver	19.24		
Rubby, Jack, rollerman	286.95		
Rullman, Charles, engineering supervisor	5,560.00	1.95	
Runkle, Clarence E., flagman	150.16		
Rupert, Ethel, secretary	3,270.00		
Rutger, Thomas A., stakeman	102.67		
Ryan, Edward J., truck driver	186.88		
Sabin, Wm. U., assistant carpenter	2,775.64		
Sacre, John H., state police guard	827.74		
Sacre, Lyle J., hoist operator	3,249.34	12.10	
Sage, Delbert J., dist. maint. supt.	6,030.00	195.25	
Sajovic, Wm. J., laborer	132.12		
Sakraida, Bernard A., truck driver	217.76		
Sakraida, Vincent E., truck driver	240.84		
Salazar, Cresencio B., shoveler	102.01		
Saling, Earl F., engineering assistant	4,410.00		
Salter, Gail, laborer	72.08		
Salter, Ralph, laborer-shoveler	91.20		
Sammons, Teddy R., office assistant	1,354.00		
Samuelson, Jack H., laborer	94.80		
Sanders, Ed A., pull grader operator	2,512.76		
Sandford, Jn. C., laborer	128.40		
Sandy, Lamar L., chainman	869.28		
Sanford, Vivian P., laborer-tow grader operator	2,229.00		
Saull, Oney W., pruner's assistant	2,295.46		
Saunders, James R., laborer-truck driver	810.91		
Sawyer, Joshua S., draftsman	3,370.00		
Scarbrough, Roy C., section foreman	1,515.00		
Schampier, Frank J., bridgeman	1,652.62		
Schaudt, Eugene, stakeman	134.84		
Schannep, I. M., title examiner	6,030.00	89.60	41.04

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Schell, Clyde B., truck driver	$ 238 65	$	$
Scherff, Winston R., truck driver	2,697.79		
Schertenleib, Edwin F., section foreman	3,304.75		
Schevenius, C. Rudolph, truck driver	2,725.36		
Schildmeyer, Lloyd E., weighmaster	2,658.50		
Schisler, Charles E., laborer	2,242.88		
Schlegel, Sam J., raker	1,765.57		
Schmidt, John J., Jr., checker	319.72	16.90	
Schneider, Carl C., engineering designer	5,205.00		
Schoenwald, John H., laborer-miner	2,664.25		
Schoppert, Guy, street foreman	2,431.01		
Schuchert, Wayne, laborer-truck driver	504.60		
Schwering, Walker E., section foreman	3,315.00		
Scobee, Thos. Earl, laborer	2,307.94		
Scofield, Willard J., transitman	3,850.00	22.30	
Scott, Gordon D., laborer	120.96		
Scott, John H., resident engineer	6,030.00		
Scott, Royal, painter-bridgeman	1,681.12		
Scott, Virginia G., typist	282.90		
Scranton, Robert E., laborer	451.16		
Scroggin, Watt C., truck driver	2,749.86	2.00	
Scull, William C., draftsman	3,818.10	53.15	
Seaman, Jack, laborer-truck driver	49.92		
Seamon, Owen F., inspector	3,584.00	57.78	
Sears, Earl H., raker	593.25	1.60	
Seaton, George M., laborer-truck driver	375.74		
Seaweard, E. Max, laborer	1,142.98		
Seeley, C. C., dist. maint. supt.	6,030.00	334.25	
Seeley, Orrin J., laborer	537.90		
See, Keith L., timekeeper	2,677.64	3.45	
Sein, Ernest M., truck driver	2,352.14		
Sellers, Joe, fireman	2,845.00		
Sellers, Roy C., paving foreman	3,651.15		
Senn, Ernest E., rigger	2,451.29	2.00	
Senn, Joseph M., assistant rigger	1,322.72		
Settell, Ivol E., shoveler	41.70		
Shaffer, Floyd R., trk. dr.-power. mower oper.	2,036.14		
Shank, Kenneth E., clerk	1,131.61		
Shannon, Max, laborer	34.00		
Sharpe, Carroll C., truck driver	1,689.30		
Shaver, Buddie W., section foreman helper	2,671.70		
Shaw, Archie C., head chainman	3,011.95	2.50	
Shaw, Chester C., laborer	406.51		
Shaw, Lloyd P., draftsman	4,305.00		
Shaw, Roland, rollerman	1,085.48		
Sheaffer, Clifford L., draftsman	3,259.16	11.90	
Shearer, Chas. R., truck driver	707.98		
Shearer, Marcus W., boilerman	765.92		
Sheckler, Roy R., bridgeman	1,586.77		
Sheeon, Raymond G., office assistant	1,256.63		
Sheldon, Eugene R., timekeeper	3,250.44		
Sheldon, Wm. A., gate tender	1,312.96		
Shellenberger, Wm. H., laborer-truck driver	143.25		
Shelley, Benjemon E., laborer	35.28		
Shelton, Geo. H., working foreman	3,033.83		
Shepflin, Julius, boilerman	1,794.45		
Shephard, Robert E., laborer	61.80		
Sherman, Donald K., laborer	62.92	30.30	
Sherrett, Vernon C., bridge foreman	4,100.00		
Sherwood, Francis M., computer	1,989.84	11.75	
Shields, Ray W., laborer	283.80		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Shields, Virgil E., laborer	$ 362.12	$	$
Shindler, Marie, stenographer	2,670.00		
Shinkle, Frank, section foreman helper	2,909.76		
Shinn, Lowell E., office assistant	3,620.00		
Shoemaker, Fred H., checker	526.45		
Short, Catherine M., clerk	1,650.00		
Shough, Guy R., sign crew foreman	3,390.00	128.00	
Shroder, Evert, Sr., watchman	1,397.02		
Shutts, Ross D., truck driver	320.36		
Siegmund, Rudolph F., tree pruner-trk. dr.	2,470.00		
Sieler, Wm. C., laborer	374.48		
Sijota, Frank W., operating watchman	2,790.00		
Silvey, Wm. A., laborer	325.71		
Sim, Henry, mechanic	3,723.60	76.60	
Sim, Tom, oiling foreman	4,498.60		
Simmons, Harold V., inspector	3,630.00	1.15	7.00
Simmers, Ross C., laborer-truck driver	274.70		
Simmons, Marvin, truck driver	45.88		
Simmons, Vernon, laborer	25.20		
Simon, Floyd H., bridge foreman	3,710.00		
Simpson, John E., laborer	1,896.71		
Simpson, Kirk, draftsman	3,810.00		
Simpson, Harold Bert, engineering designer	4,665.00		
Simpson, L. Paul, office assistant	3,630.00	23.00	
Simpson, Rockwell, levelman	3,623.22	32.90	
Simpson, Roy L., spotting foreman	2,624.08	8.15	
Sims, Paul M., section foreman	3,063.06		
Sinclair, Hugh R., truck driver	2,366.77		
Sine, Charles J., checker	338.00		
Singletary, John H., laborer	389.14		
Sipp, Max Willard, truck driver	2,527.00	4.25	
Sipprell, Ralph B., engineering supervisor	5,023.33	68.85	2.65
Sitler, Harry E., laborer-truck driver	56.64		
Skaggs, Jn. Eldie, mechanic	3,586.35	21.20	
Skelly, Ernest A., assistant staff engineer	7,200.00		
Skelton, Joseph T., resident engineer	6,030.00		
Skinner, James T., head chainman	1,357.31	66.85	
Skopil, Otto R. Jr., checker	69.34		
Skonbo, Adolf, laborer	20.16		
Sladky, Edward, laborer	744.59		
Slavens, Charles C., resident engineer	6,030.00	60.30	
Slover, Clifford W., motor grader operator	1,638.11		
Slover, M. F., laborer	93.24		
Slover, Roy, laborer	88.20		
Small, Geo. W., motor grader operator	2,717.98		
Smith, Alan W., truck driver	963.68		
Smith, Albert G., laborer	194.30		
Smith, Alfred W., laborer-painter	160.50		
Smith, Arthur K., rollerman	283.88		
Smith, Basil D., carpenter	3,085.06		
Smith, Billy H., watchman	1,798.37		
Smith, Carl C., truck driver	1,496.64		
Smith, Carl F., claims supervisor	6,030.00		
Smith, Charles A., shovel operator	3,849.94		
Smith, Charles C., miner	511.85		
Smith, Clarence R., office assistant	216.77		
Smith, Donald L., truck driver	164.60		
Smith, Earl H., laborer	53.32		
Smith, Earl R., boilerman	1,089.56		
Smith, Edward E., pull grader operator	2,552.76		
Smith, Elwood L., laborer	88.20		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Smith, E. Lloyd, office assistant	$ 455 81	$	$
Smith, Frank E., state police guard	319.53		
Smith, George B., laborer	246.52		
Smith, Geo. T., truck driver-watchman	732.54		
Smith, George W., section foreman	3,315.00		
Smith, Harry H., laborer	2,163.00		
Smith, Howard G., staff engineer	10,800.00	811.90	
Smith, Jas. Elton, section foreman	2,535.00		
Smith, James W., laborer-truck driver	2,236.34	2.80	
Smith, La Verne C., weighmaster	1,666.33		
Smith, Lee, laborer	257.04		
Smith, Lee V., section foreman	3,119.75		
Smith, Leland C., weighmaster	3,195.15		
Smith, Leslie R., surfacing foreman	1,920.36		
Smith, Louie V., motor grader operator	300.81		
Smith, Malcolm G., engineering assistant	3,795.00	497.45	
Smith, Melvin C., checker	1,330.65		
Smith, Meryl W., checker	84.33		
Smith, Orval F., laborer	216.72		
Smith, Ota B., bridge painter	798.95		
Smith, Owen E., transitman	3,359.03		
Smith, Richard W., office assistant	2,947.14		
Smith, Ross E., laborer	55.44		
Smith, Russell M., dist. maint. supt.	5,798.33	190.45	
Smith, Ruth M., stenographer	2,539.19		
Smith, Stanley G., truck driver	2,374.86		
Smith, Ted L., laborer	219.24		
Smith, Thos. Orval, laborer	10.88		
Smith, Vernon L., laborer	37.80		
Smith, Walter L., chainman	218.06		
Smith, Walter R., laborer-tow grader operator	2,473.23		
Smitton, Lawrence C., resident engineer	5,555.00		
Smoot, Carl R., truck driver	296.44		
Snider, Clifford E., laborer	17.32		
Snider, Thos. A., rollerman	2,442.59		
Snow, Wm. A., laborer	83.28		
Snyder, Alvin Clair, laborer	178.92		
Snyder, Harvey L., office assistant	1,378.87	4.50	
Snyder, Wm. C., laborer	2,228.74		
Snyder, W. Raymond, laborer-pull grader operator	2,232.73		
Sohler, Richard C., laborer	55.44		
Sonner, Bill, machinist	3,545.72		
Sothman, George, dist. maint. supt.	6,030.00	224.97	
Sott, Wm. J., truck driver	174.26		
Southwick, Frank B., man and team	1,350.34		
Spagle, Maurice F., truck driver	1,610.16		
Spagle, Roy A., street foreman	3,492.27		
Sparkman, James T., lineman	805.92		
Sparks, Stanford C., weighmaster	1,252.74		
Spaulding, Loran L., chief weighmaster	2,305.00	207.05	
Spayde, Joe E., chainman	340.00		
Speaker, Clifford B., draftsman	4,200.00		
Spence, Ely J., laborer-painter	90.77		
Spencer, Albert W., head chainman	2,780.15	3.05	
Spencer, Roy L., transitman	3,035.06		
Spickerman, Lester W., state police guard	834.19		
Spillman, Ruth H., stenographer	51.61		
Springer, Chester G., inspector	3,630.00	24.70	3.75
Spurlock, W. Milton, section foreman helper	2,861.96		
Staley, James D., section foreman helper	2,740.93		
Stamper, Claude L., section foreman	3,315.00		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Standard, Kelley J., weighmaster	$ 290.00	$	$
Stankavich. Matthew M., T. D.-mot. grad. oper.	2,524.32		
Stanley, Clarence B., engineering supervisor	4,088.07	60.95	
Stanley, Robert T., engineering designer	5,155.00		
Starbuck, Mary, revolving fund clerk	1,500.00		
Starkey, Floyd A., paving foreman	4,560.44	14.10	
Starr, Wallace D., State Police Guard	625.00		
Statler, Raymond N., painter	56.24		
Statzer, Cecil E., Jr., chainman	91.00		
Steel, Lorn P., laborer	5.44		
Steele, Bill W., laborer	1,610.98		
Steeprow, Harvey R., laborer	2,181.47		
Stein, Gilbert L., office assistant	3,125.00	52.85	
Stephens, Eugene W., truck driver	22.94		
Stephens, Riley O., truck driver	2,283.13		
Stephens, Roy P., truck driver-grader operator	2,477.64		
Stephenson, Mervyn, assistant staff engineer	7,560.00	860.65	
Sterling, John, state police guard	818.55		
Stevens, Jewell V., truck driver	17.76		
Stevenson, Earl L., draftsman	3,690.00		
Stevenson, Frank W., assistant bridge foreman	2,466.75		
Stevenson, Glenn O., draftsman	4,290.00	271.15	
Stevenson, Thomas C., driver and operator	134.29		
Stewart, Bernard W., lineman	79.84		
Stewart, Ivor N., office man	3,630.00		
Stewart, Mark J., raker	2,259.34		
Stewart, Millard J., laborer	15.64		
Stewart, Milo M., computer	3,450.00		
Stewart, Rudolph G., mechanic	2,943.15		
Stewart, Vinona, stenographer	305.81		
Stewart, Wm. H., truck driver-motor grad. operator	2,494.25	87.90	
Stiffler, Wm. W., assistant staff engineer	7,529.52	752.85	
Still, Dean, checker	108.33		
Stobie, John T., section foreman helper	2,688.52		
Stoddard, Dana E., mechanic's helper	2,805.64		
Stoddard, Hugh P., watchman and janitor	2,605.00		
Stokes, Elmer E., laborer	2,098.83		
Stone, Henry E., truck driver	2,535.97		
Stone, Norman F., checker	84.33		
Storey, I. Victor, truck driver	1,475.02		
Stough, Edward W., watchman	2,605.00		
Stout, Jess C., laborer	72.04		
Stoutt, Paul T., section foreman	3,315.00		
Stover, Edward C., bridgeman	1,770.34		
Stowell, Dick, laborer	31.62		
Stratton, Lowell M., transitman	4,110.00	2.00	
Stream, Earl E., office assistant	3,630.00	9.70	
Stretch, Wm. R., field assistant	3,270.00		
Strobel, Wm. A., truck driver	2,725.85		
Strobel, William D., raker	2,643.42		
Stroberg, Frank L., section foreman	3,190.00		
Strohmaier, Caroline, clerk	2,418.39		
Strohmeyer, William M., dist. maint. supt.	6,030.00	196.65	
Struble, Gertie A., stenographer	2,670.00		
Stryker, Walter J., raker	2,565.41	5.80	
Stuart, Albert L., mechanic	3,559.50		
Stuart, Cecil A., mechanic	3,560.72		
Stuhr, Hubert, laborer	141.44		
Stults, Fred L., section foreman	3,315.00		
Stults, Glen R., laborer	87.26		
Stump, Mitchell M., transitman	3,908.79		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Stumpenhaus, Lawrence C., sign crew foreman	$3,390.00	$ 716.64	$ .....
Sullivan, J. Frank, section foreman	3,310.00	10.70	.....
Sullivan, Lawrence J., draftsman	3,727.74	19.70	.....
Sunderland, Perry A., bridgeman	2,009.60	.....	.....
Sutherland, George A., extra-gang foreman	3,354.00	.....	.....
Sutherland, Jess W., section foreman helper	2,897.71	2.85	.....
Sutton, Roy J., laborer-truck driver	78.81	.....	.....
Sutton, Walter W., truck driver	351.66	.....	.....
Suydam, Leo J., state police guard	83.33	.....	.....
Swacker, Richard, laborer	2,281.94	.....	.....
Swart, Hedda S., resident engineer	5,830.00	2.45	.....
Sweek, Harold N., truck driver	5.92	.....	.....
Swift, Dean, resident engineer	6,030.00	154.00	.....
Swinford, Ira W., laborer	123.48	.....	.....
Swisher, Hayman P., laborer	16.32	.....	.....
Switzer, David B., laborer	324.14	.....	.....
Sykes, Oliver W., truck driver	1,054.58	.....	.....
Taber, Ashley T., truck driver	383.80	.....	.....
Taber, Albert C., section foreman helper	2,668.34	.....	.....
Talbott, Earnest A., mechanic	3,120.34	48.85	.....
Talbott, Herschel V., oiler driver	2,897.04	.....	.....
Talmadge, Ernest E., carpenter	2,851.15	.....	.....
Talmadge, Howard B., bridgeman	1,448.40	.....	.....
Tams, Frederic F., spotting foreman	523.66	.....	.....
Tandy, Clarence W., draftsman	4,110.00	.....	.....
Tanler, Allen P., shoveler-flushcoater	340.09	.....	.....
Tanler, Ruel A., truck driver	944.00	.....	.....
Tanner, Glenn D., laborer	132.88	.....	.....
Tanner, Joseph M., truck driver	268.60	.....	.....
Tappendorf, Roger W., flagman	71.36	.....	.....
Taylor, Berniece, clerk	1,240.00	.....	.....
Taylor, Dalberth A., laborer	404.07	.....	.....
Taylor, Donald B., office assistant	3,355.48	.....	.....
Taylor, F. Wayne, engineering assistant	3,052.59	87.30	.....
Taylor, Geo. B., state police guard	500.00	.....	.....
Taylor, George M., laborer	146.16	.....	.....
Taylor, Jesse L., inspector	2,093.00	.....	.....
Taylor, Loyd V., shovel operator	2,969.14	.95	.....
Taylor, Paul A., section foreman helper	2,643.45	1.00	.....
Taylor, Robert M., sign crew helper	2,635.00	.....	.....
Taylor, Samuel C., section foreman	3,268.38	3.00	.....
Taylor, Thelma D., stenographer	2,620.00	10.60	.....
Taylor, Theron T., motor grader operator	565.26	.....	.....
Teague, W. Fred, laborer-truck driver	1,270.02	.....	.....
Teel, H. M., resident bridge engineer	5,155.00	69.50	.....
Teel, Roger C., stakeman	318.75	.....	.....
Templer, Verne J., laborer	2,391.27	.....	.....
Templeton, Aaron B., truck driver	2,571.94	.....	.....
Templeton, Marion N., laborer	1,765.90	.....	.....
Terry, Merton J., transport driver	1,791.65	.....	.....
Terry, Meryl V., stenographer	2,260.00	.....	.....
Tesdal, Karl S., draftsman	3,069.76	.....	.....
Tetton, Roger T., laborer	101.60	.....	.....
Tetrick, Glen M., watchman and janitor	2,605.00	.....	.....
Tharp, Orvile I., shovel operator	4,093.10	.....	.....
Theilen, Louis, motor grader operator	2,767.11	.....	.....
Thiele, Elmer A., truck driver	1,606.79	.....	.....
Thissell, Harry J., motor grader operator	1,091.22	.....	.....
Thoen, Ole O., leverman	258.85	.....	.....
Thomas, Carl F., section foreman	3,315.00	.....	.....
Thomas, Elvin E., office assistant	319.50	.....	.....
Thomas, John A., section foreman	3,315.00	.....	.....

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Thomas, John B., office assistant	$ 240.00	$	$
Thomas, John W., laborer	76.23		
Thomas, Wm. I., leverman	2,402.78		
Thompson, Alexander, gate tender	2,485.00		
Thompson, Charles D., laborer	226.80		
Thompson, Floyd D., resident engineer	4,910.00	477.05	
Thompson, Wesley Tabb, transitman	4,110.00	150.95	
Thomson, J. Ejnar, laborer	282.87		
Thornburg, Joseph F., laborer	1,161.24		
Thornton, Charles J., office assistant	3,630.00		
Thorp, Charles, bridgeman	1,629.62	46.95	
Thorp, Everett, laborer-truck driver	148.04		
Thorpe, Bernard F., computer	3,017.58		
Thorpe, Vernon R., transitman	4,180.97	69.45	
Tibbits, Lindsey, laborer	1,624.08		
Tiller, Sherman W., laborer	488.30		
Tilley, Geo. C., section foreman	3,315.00	5.40	
Tilley, Wm. Edward, laborer	1,048.05		
Tillotson, Robert A., state police guard	741.93		
Timeus, Haeckel E., power mower operator	2,037.10		
Tindall, John A., laborer	268.70		
Titus, Ben E., acting director	4,860.00	304.50	
Toney, James F., section foreman helper	2,871.06		
Toole, Joseph G., dist. maint. supt.	6,030.00	263.70	
Toole, Niccole A., resident engineer	5,830.00	126.60	
Townsend, Clement A., raker	2,456.14	2.80	
Townsend, Watson, engineering supervisor	6,030.00		
Toycen, Russell W., sign crew helper	2,594.03	589.80	
Traverse, Donald E., truck driver	230.20		
Travess, John, laborer	2,312.78		
Tresham, Harry, laborer-truck driver	2,199.35		
Triplett, Andrew J., laborer	163.80		
Troudt, Orville L., laborer	166.92		
Trout, Geo. D., Jr., chainman	230.65		
Troutman, Albert E., Sr., state police guard	818.55		
Truelove, Ernest E., mechanic	2,629.74		
Truelove, Rex L., stockman	1,548.73		
Trueman, Frank E., laborer	2,278.99		
Trueman, George H., laborer	2,238.37		
Tucker, Clifford G., truck driver	140.12		
Tunmonds, Ray N., paint machine operator	2,728.43	445.15	
Turk, Lloyd R., head chainman	2,810.00		
Turner, Alfred H., sign shops painter	2,738.41		
Turner, Arthur L., state police guard	818.55		
Turner, Jesse F., laborer	158.76		
Turner, John F., apprentice painter	1,988.09		
Turner, Monroe, truck driver	2,042.81		
Turner, Paul, flagman	1,335.41		
Turner, Ralph C., flagman	292.04		
Twidwell, Harry T., oiler driver	2,862.64	133.50	
Tye, Alfred L., raker	452.60		
Ulam, Jack P., chainman	777.71	14.30	
Umphlette, Ernest E., resident engineer	6,030.00	4.95	
Umscheid, Guy L., truck driver	2,518.70		
Underdown, Joseph W., laborer-pitman	1,520.74		
Uppendahl, Walter F., mechanic	3,476.42		
Urlaub, Clara E., clerk	2,420.00		
Utter, Collins W., checker	84.33		
Vagt, Herman O., laborer-truck driver	2,259.87		
Valade, Earl C., head chainman	3,105.00		
Vancil, Melvin H., truck driver	2,487.16		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Vancil, Samuel W., laborer	$ 301.32	$	$
Van Cleave, Jack R., sign crew foreman	2,738.23	692.15	
Van Cleave, Kenneth L., section foreman	3,173.85		
Vandehey, Clair J., laborer	170.64		
Vandehey, Francis M., miner's helper	111.52		
Vandehey, Puis L., laborer-truck driver	1,030.84		
Vandehey, Wm. E., truck driver	2,540.29		
Van Dusen, Lloyd, state police guard	677.42		
Vander Veldon, Cornelius Wm., laborer-truck driver	1,639.92		
Van Derlin, Vernon C., axeman	33.00		
Van Derlis, Arthur L., axeman	33.00		
Van Gilder, Darwin A., truck driver	2,147.62		
Van Hise, Frank, laborer	777.69		
Van Horn, Geo. W., blacksmith	3,262.56		
Van Horn, Marvin J., laborer	382.94		
Van Metre, Francis Marion, laborer-truck driver	326.80		
Van Orden, Walter A., laborer	181.92		
Van Orden, Walter L., truck driver	2,597.06		
Van Santen, Geo. E., chainman	493.00		
Van Scoy, Paul, division engineer	8,100.00	861.65	
Van Toesen, Larry R., load spotter	261.60		
Van, Willard D., laborer-truck driver	1,303.30		
Varner, Walter H., truck driver	511.50		
Vaughn, Roy C., section foreman	2,726.75	15.00	
Velasquez, Andrew, shoveler	34.41		
Verhagen, Leonard M., laborer	643.76		
Versteeg, Charles N., painter	358.80		
Vicars, Arthur E., laborer	1,958.99		
Vicars, Harold F., miner's helper	1,305.80		
Vinson, Alice G., clerk	2,910.00		
Voeller, Leo, laborer	576.72		
Voss, Emil A., laborer	128.21		
Vought, Ken, chainman	330.00		
Vreeland, Chester W., miner's helper	539.32		
Waddell, Orville H., bridge operator	147.78		
Waddell, Oscar H., retort operator	3,024.99		
Waddington, Andrew J., truck driver	2,814.86	17.50	
Waeltz, Howard O., laborer	99.14		
Wagers, Ralph C., price clerk	2,865.00		
Waggoner, O. Lee, section foreman	3,315.00		
Wagner, Cecil L., mechanic	3,774.98	34.65	
Wahl, Howard T., truck driver	1,199.69		
Waite, Henry N., pilot car driver	285.76		
Waldon, Wm. Manford, laborer	1,292.19		
Walker, Carles J., motor grader operator	2,641.74		
Walker, Ernest E., raker	2,639.65		
Walker, James D., dist. maint. supt.	6,030.00	429.40	
Walker, Jerry T., painter	180.56		
Walker, John D., laborer	19.32		
Walker, John H., computer	2,082.69	108.00	
Walker, Leslie M., shoveler	230.64		
Walker, Noble A., laborer	2,231.89		
Walker, Solomon C., sign crew foreman	3,075.00	448.45	
Walker, Wilbur R., laborer-painter	297.48		
Wallace, Alvin J., computer	3,324.76	22.30	
Wallace, Jess L., state police guard	163.25		
Wallace, Lewis T., mechanic	3,635.56		
Wallace, Robert A., laborer	2,275.99		
Waller, John F., locating engineer	6,030.00	165.15	
Walling, Harold W., gate tender	19.17		
Waln, A. Kelne, laboratory assistant	4,511.30	56.50	

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Walsh, Angus B., computer	$3,630.00	$ .50	$
Walsh, Raymond, Jr., laborer	393.50		
Walston, Wm. F., laborer	519.68		
Walt, Ted S., painter	32.56		
Walters, Samuel F., resident engineer	5,830.00	3.00	
Walton, Eugene A., section foreman helper	2,901.61		
Walton, J. Logan, laborer	2,291.06		
Ward, Clarence W., bridgeman	1,495.37		
Ward, Harold M., head lineman	904.35		
Warfield, Leslie H., engineering supervisor	4,777.14	72.80	
Warner, Earl H., section foreman helper	2,744.43		
Warnock, Arey D., truck driver	228.48		
Warren, Charles L., motor grader operator	2,905.19	2.50	
Warren, Joseph, laborer	2,318.68		
Warren, Marvin H., section foreman helper	2,825.01		
Wasson, Carleton W., office assistant	1,163.33		
Waterhouse, Joseph E., computer	3,630.00	18.35	
Watkins, Ed, motor grader operator	2,839.74		
Watkins, Leonard Wade, sign crew helper	1,589.33	103.45	
Watkins, Norman R., truck driver	2,720.37	9.85	
Watson, Ellis I., miner's helper	206.72		
Watson, Lawrence P., caretaker	2,220.00	1.45	
Watz, Frank J., laborer	13.60		
Way, Don, chainman	445.32	22.75	
Wear, James B., laborer-truck driver	449.16		
Weathers, Ervin G., state police guard	20.00		
Weaver, Edna V., stenographer	156.29		
Weaver, Jack B., resident engineer	6,030.00	13.40	
Weber, Joseph A., engineering designer	5,670.00	481.30	
Weber, Loren A., chainman	1,217.10		
Webber, Ray A., engineering supervisor	6,005.00	274.30	
Webber, Robert B., checker	117.00		
Wechter, Bob A., stakeman	99.00		
Weckman, Theodore E., blacksmith's helper	2,554.87		
Weddle, Charles L., shovel operator	3,788.70	.50	
Weedmark, Cecil E., truck driver	2,792.12		
Wegner, Elmer J., laborer-pull grader operator	2,033.78		
Wehrle, Lawrence W., truck driver	63.05		
Weidler, George E., state police guard	300.00		
Weisner, Fred S., truck driver	1,078.32		
Welch, Allen T., lineman	103.36		
Welch, Anona E., secretary	3,270.00	24.15	
Welch, Maitland E., office assistant	2,297.06		
Welch, Pauline G., secretary	3,630.00	8.50	
Wells, Earl Eugene, laborer-truck driver	942.09		
Wells, John H., section foreman	3,128.52		
Wells, Merle E., caretaker	2,056.00		
Wells, Orbie A., laborer	1,866.46		
Welsh, Fred J., section foreman	3,315.00		
Wenger, Chas. H., laborer-truck driver	33.12		
Werner, Maurice, sign shops painter	2,737.81		
Werth, Fred E., mower operator	28.12		
Weseman, Earl W., laborer	2,270.20		
West, Fred W., section foreman helper	2,788.82		
West, Leland A., laborer	191.52		
West, Ray C., laborer	89.96		
Westerberg, Alex E., bridgeman	192.40		
Westfall, John H., bridgeman	1,653.76		
Wetherbee, Gordon L., truck driver	2,405.72		
Whalen, Bernard M., truck driver	396.69		
Whaley, Thomas Oness, mechanic	3,717.12	126.50	

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Whaley, Wm. F., oiler driver	$2,817.03	$ 6.90	$
Wheaton, Donald E., truck driver	114.09		
White, Alfred, laborer	320.04		
White, Arthur G., office assistant	3,605.81		
White, Dorr E., plant foreman	2,924.52		
White, Madison L., laborer	250.74		
White, Oscar A., laboratory assistant	4,330.00	166.95	
White, Raymond, laborer-truck driver	1,212.10		
White, Rodney J., rollerman	2,707.67		
Whitmore, Perry P., resident engineer	6,030.00	46.00	
Whitmore, Delbert C., laborer	705.41		
Whittemore, Frank A., machinist	3,458.64		
Wicklander, Amanda A., clerk	3,065.00		
Widdows, Walter O., assistant staff engineer	4,825.00	413.40	
Widner, Louis J., lineman	67.28		
Wik, Ardyce, stenographer	773.23		
Wilcox, Harry N., laborer-truck driver	549.08		
Wilcox, Shelby M., truck driver-grader operator	2,512.53		
Wilcox, William H., checker	1,860.32	10.50	7.90
Wilcoxen, Ira F., laborer	244.38		
Wilcoxen, John W., carpenter	2,974.19	18.50	
Wilcoxen, Jn. W., Jr., bridgeman-painter	17.76		
Wilcut, Oszro B., section foreman helper	2,666.06		
Wild, Alfred, laborer	141.12		
Wildman, Ralph L., laborer	265.80		
Wilkerson, Leonard M., blacksmith	3,336.38		
Wilkins, Harold E., laborer	236.88		
Wilkins, Sam L., working foreman	2,784.70		
Wilkinson, Melvin H., inspector	3,094.84	23.90	
Willett, Arch C., motor grader operator	2,461.60		
Willey, Lawrence E., oiler	3,390.00		
William, Frank E., laborer-truck driver	1,479.29		
Williams, Archie, laborer	529.74		
Williams, Berl E., laborer-truck driver	332.44		
Williams, Dolly D., section foreman helper	2,876.26	2.90	
Williams, Elton L., bridgeman	2,203.28		
Williams, Glenn E., paintman	257.19		
Williams, Higgins D., broom operator	313.20		
Williams, Horace J., office assistant	3,630.00	22.05	
Williams, Hugh E., truck driver	1,273.65		
Williams, Mabel T., clerk	2,735.00		
Williams, Paul A., lineman	43.52		
Williams, Ralph, laborer	1,192.89		
Williams, Robert A., raker	1,545.70		
Williams, Warren A., retort operator	1,341.08		
Williams, W. C., division engineer	9,600.00	600.20	
Williams, Willard T., punch operator lineman	2,010.47		
Williamson, Gail A., timekeeper	2,646.75		
Williamson, Guy N., laborer	28.84		
Williamson, Joe, plant foreman	1,193.22		
Williamson, Murvine R., laborer-truck driver	358.04		
Willigan, Lester O., truck driver-grader operator	2,400.44		
Willis, Chas. V., section foreman	3,315.00		
Willis, Fred E., laborer	41.58		
Willis, Glenn O., laborer	253.78		
Willis, Melvin C., section foreman helper	2,764.59		
Willis, Otis C., laborer-miner's helper	2,256.83		
Willmschen, Boyd L., truck driver	1,554.54	27.60	
Willson, Arnold F., laborer	260.19		
Wilson, Carl T., assistant timekeeper	266.68		
Wilson, Edwin C., laborer-truck driver	1,892.45		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Wilson, Harlan A., pruner	$1,488.60	$	$
Wilson, Henry G., rollerman	2,860.82		
Wilson, Isaac L., flagman	435.46		
Wilson, J. Edward, section foreman	3,315.00	2.05	
Wilson, King M., laborer	829.43		
Wilson, Marion T., checker	397.74		
Wilson, Ray L., assistant rigger	2,165.38		
Wilson, Raymond O., section foreman	3,315.00	2.35	
Wilson, Robert M., laborer	443.64		
Wilson, Vernon L., paintman	862.41		
Wimer, John B., checker	506.13		
Windust, F. Lewis, truck driver	2,436.10		
Winn, Deward W., watchman	181.45		
Winn, Elbie L., laborer	183.96		
Winn, Franklin C., carpenter	313.92		
Winn, George A., laborer	931.97		
Winsor, Richard T., section foreman	2,647.44		
Wise, Joel C., pull grader operator	108.80		
Wise, Ralph J., truck driver	2,440.62		
Witt, William H., right of way agent	3,387.26	808.55	
Witter, Charles T., draftsman	4,470.00		
Witty, Ervan, motor grader operator	2,699.34		
Witzel, Wm. H., flagman	385.40		
Wohlgemuth, Alvin, flushcoater	127.80		
Wolfard, Edward B., laborer-truck driver	338.32		
Wolfe, Victor D., draftsman	4,110.00	19.80	
Wood, George E., inspector	3,930.81	229.80	11.26
Wood, George W., stockman	2,782.13		
Wood, Glenn H., motor grader operator	2,765.52		
Wood, Myron C., engineering assistant	3,860.00		
Wooden, Clifford T., section foreman	3,315.00		
Woodley, Earle H., carpenter	2,940.27		
Woods, Jesse Y., laborer-truck driver	2,298.15		
Woodward, Mary, typist	2,250.00		
Woodward, Odis C., laborer-pull grader	1,216.86		
Wooldridge, Elmer H., office assistant	2,814.33		
Woolfe, Lavant L., laborer	22.68		
Woolley, Charlie A., watchman	2,269.92		
Workman, Leonard W., truck driver	2,530.31		
Worley, Jas. F., laborer	54.18		
Worthing, Charles E., laborer	141.12		
Wright, Burley O., head lineman	301.88		
Wright, Claude A., laborer	118.94		
Wright, Curtis L., shovel operator	1,955.27		
Wright, George L., laborer	265.42		
Wright, Lionel J., state police guard	828.63		
Wright, Orville C., lineman	222.24		
Wright, Oscar T., apprentice painter	491.84		
Wright, Richard O., power mower operator	909.98		
Wright, Roger Winslow, section foreman helper	2,882.76		
Wright, Walter T., computer	2,654.51	24.40	
Wullschleger, Fred, laborer	1,310.15		
Wyant, Joseph H., state police guard	558.04		
Wyatt, Robert W., chainman	2,596.79		
Wycoff, Walter R., laborer	2,168.33		
Wymore, Floyd R., laborer-gate tender	335.32		
Yale, William M., truck driver	2,729.03		
Yarnell, Edward J., laborer-truck driver	1,341.32		
Yarnell, Leonard L., laborer	149.24		
Yeager, G. M., payroll supervisor	4,830.00		
Yeager, Robert, weighmaster	1,951.90	2.80	

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private Car Mileage
Yeck, Lloyd O., timekeeper	$2,700.00	$	$ .....
Yoder, Harry L., bridge foreman	4,100.00	.....	.....
Yost, Robert G., laborer	52.92	.....	.....
Young, Frank T., resident engineer	6,375.00	8.45	.....
Young, Lee, man and team	69.00	.....	.....
Young, L. Hilbert, transitman	4,190.00	57.45	.....
Younger, Charles S., checker	101.84	.....	.....
Zaddach, Gilbert W., laborer-shovel operator	4,301.22	.....	.....
Zahler, Louis J., truck driver	63.36	.....	.....
Zecha, La Veda J., stenographer	1,462.00	.....	.....
Ziegler, Wm. F., laborer	67.96	.....	.....
Zimmerlee, Zaul A., laborer-miner's helper	466.24	.....	.....
Zimmerman, Alva E., caretaker	1,940.60	.....	.....
Zimmerman, Rudolph W., laborer-truck driver	949.92	.....	.....
Zumwalt, James H., state police guard	684.52	.....	.....
Zwicher, Leonard G., truck driver	26.27	.....	.....

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